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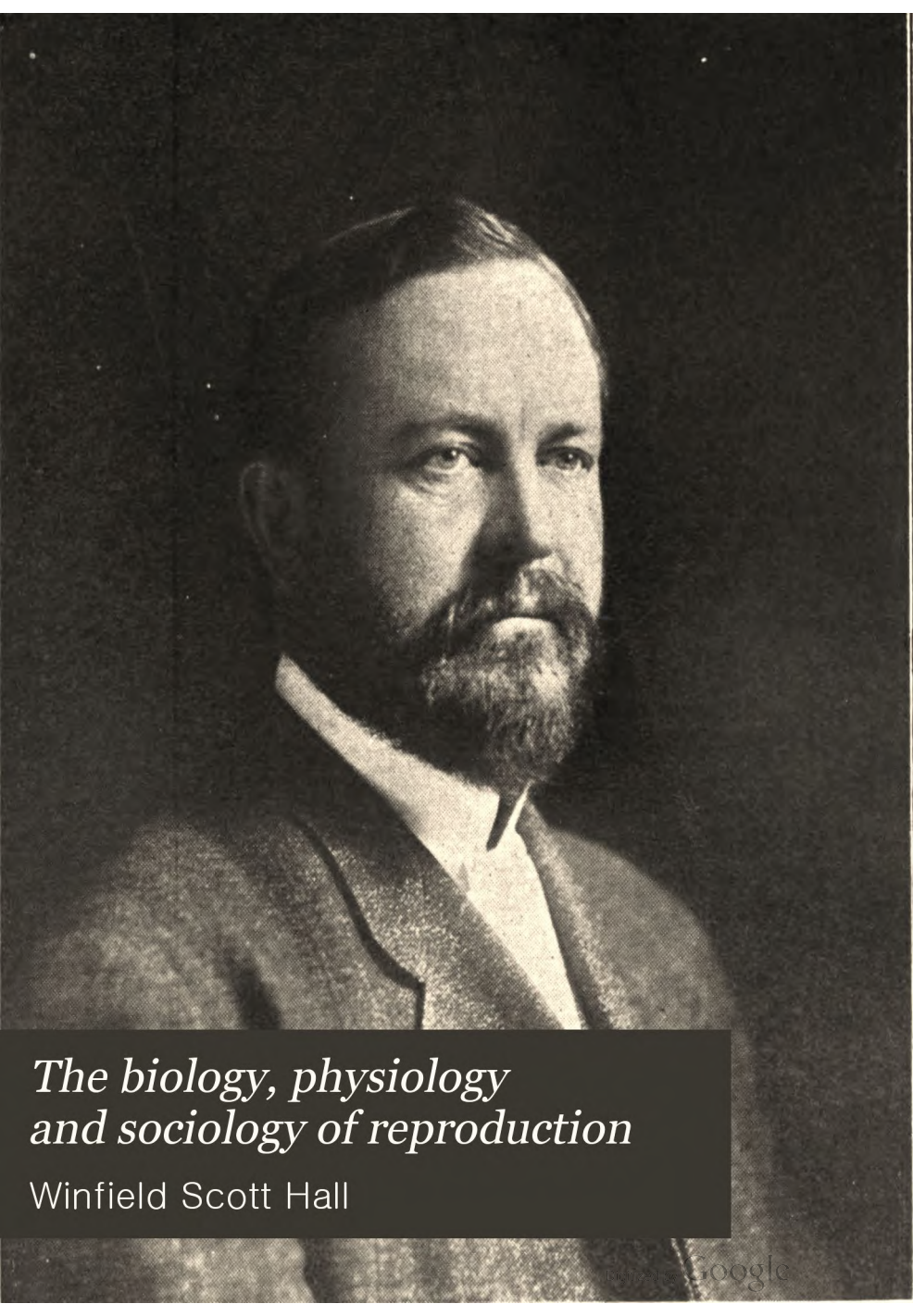
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*The biology, physiology
and sociology of reproduction*

Winfield Scott Hall

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LETTERS FROM PROMINENT EDUCATORS.

"Some day Sexual Hygiene will have a place in the curriculum of every college. It is a subject that every college man does consider in one way or another, but often ignorantly, or under unwise guidance. Dr. Hall's book is so simple and sane as well as scientific, that I wish it might be in the hands of every college man in the country."— **Dr. George A. Coe, Northwestern University.**

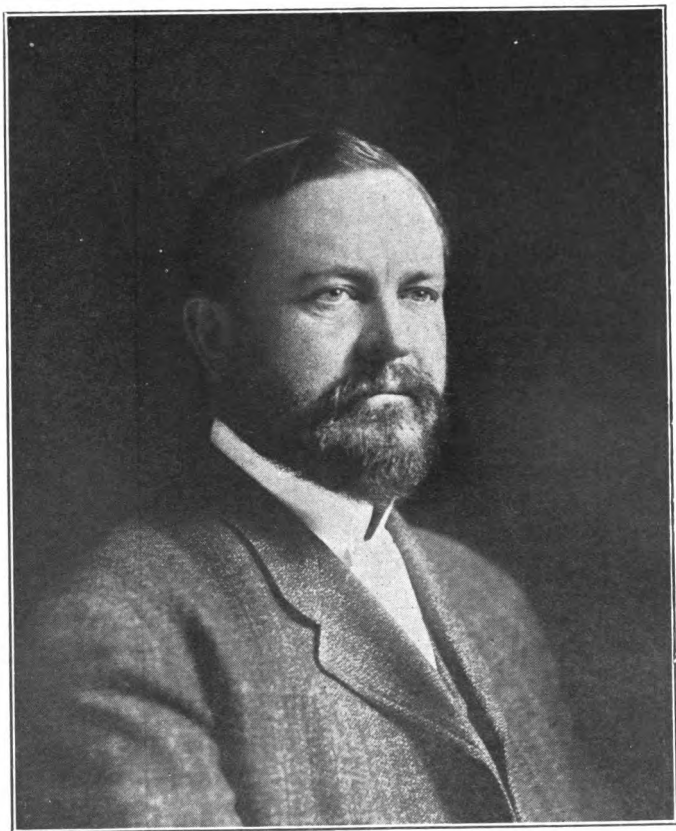
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*Yours sincerely
Winfield S. Hall*

-THE-

BIOLOGY, PHYSIOLOGY AND SOCIOLOGY

OF

REPRODUCTION

ALSO

SEXUAL HYGIENE

WITH SPECIAL REFERENCE TO THE MALE.

BY

WINFIELD S. HALL, Ph. D. (Leipzig), M. D., (Leipzig),
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THE AMERICAN ACADEMY OF MEDICINE, PRESIDENT
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ADVANCEMENT OF SCIENCE, ETC., ETC.

FOURTEENTH EDITION
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WINFIELD S. HALL

To the YOUNG MAN, who
is devoting years of his life to
secure the HIGHEST DEGREE OF DE-
VELOPMENT of those powers of
BODY and MIND that are to be HIS
INSTRUMENTS in solving LIFE'S
PROBLEMS, this little volume is
DEDICATED in the spirit of FRA-
TERNITY.

THE AUTHOR.

PREFACE TO FOURTEENTH EDITION.

The great advance in our knowledge of the physiology of the male sex apparatus has made the thorough revision of the parts dealing with that subject necessary. This opportunity has been taken to make many important additions.

The steady demand for the book has made two editions per year necessary.

THE AUTHOR.

Chicago, January, 1913.

PREFACE TO SIXTH EDITION.

The cordial reception given to this little book by the medical profession, by educators, and especially by the young men of the country, have by their demands for the book necessitated the appearance of new editions in such rapid succession that no far-reaching changes in the text have been possible even if they had been needed. Happily, no extensive changes have been required.

In the second edition several corrections, typographical and verbal, were made and additions made to the appendix. To the third edition the chapter on Development was added. The fourth and fifth editions received verbal changes here and added paragraphs there.

The sixth edition differs from the fifth in the addition of the author's portrait as a frontispiece, the addition of an answered question to the appendix and the listing of certain lecture topics, with press notices and letters.

The book seems to be meeting a demand for accurate information briefly and clearly stated.

THE AUTHOR.

Chicago, November 1, 1908.

FOREWORD.

Several years ago the author was asked by his students to present to them some of the facts of Sexual Physiology and Hygiene. The plea of "not a specialist in that line" was not accepted; so after a few weeks devoted to a careful study of the literature the subject was presented. It seemed to be acceptable, and other invitations followed in successive years not only from the author's own institution but from many others.

In the last few years the subject has been presented at all of the leading institutions of learning in the middle west—at some of them several times and always to large audiences.

In response to repeated requests for "a book" the author has finally prepared this brief volume in which he has endeavored to present a difficult subject in the true university spirit, frankly calling things by their right names, always keeping in close accord with the latest researches.

It is hoped that the chapter on Hygiene will in itself be a justification for the book.

WINFIELD S. HALL,
Chicago.

December, 1906.

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CHAPTER I.

REPRODUCTION FROM THE STANDPOINT OF BIOLOGY.

REPRODUCTION FROM THE STANDPOINT OF BIOLOGY.

I. GENERAL ACTIVITIES OF LIVING ORGANISMS.

The casual observer, even if he watches thoughtfully the various activities of plants and animals, would hardly believe these activities capable of classification into two general classes. He notes the germination of the plant seed and its early growth, step by step approaching a stage of maturity; it blossoms, produces seed, and if it is an annual plant, withers and dies. If it is a perennial plant its leaves only, wither and die at the approach of winter, the plant passing into a resting stage from which it awakes the following spring to repeat again its annual cycle.

If he observes an animal he finds that it similarly develops to a stage of maturity, reproduces its kind, withers and dies; but incident to these general activities he notes numerous others that seem to have no relation to the activity of the plant. He sees men tilling the fields, felling the forests, building houses, factories and railroads; he sees them build hospitals, colleges and churches. Is it possible to group all of these activities of plants and animals into two general groups? A more critical view of these activities makes it evident that they are all directed either to the main-

tenance and protection of the individual, or the maintenance and protection of the race. Those directed towards the maintenance of self are called *egoistic activities*, while those directed to the maintenance of the race are called *phyletic activities*.

The Egoistic Activities.

The term egoistic implies that the effort is directed towards the ego or self, and includes all of those activities directed to the support, protection, defense and development of oneself. As illustrated in the plant organism, the taking of nourishment from the air and soil, the development of the stem, branches, roots and leaves, are egoistic activities. In the animal—we may take, for example, man—the egoistic activities begin with the drawing of nourishment from the mother's breast and include all those activities of early childhood usually called play, the real significance of which is to develop the neuro-muscular system and the special senses, to that condition of alertness and strength that will make the growing individual self-supporting. A very large part of the activities of the self-supporting human subject are directed towards the earning of his daily bread, and of clothing and shelter. The activities of the school and college period, devoted, as they are, almost exclusively to the development of the youth's powers, intellectual or physical, are also ego-

istic. Even the pursuit of pleasure and of sense gratification on the part of the individual belongs to this same group of activities.

The Phyletic Activities.

As the etymology of the term suggests, these activities are devoted to the propagation, maintenance and protection of the race.

a. **Reproduction.**—The most fundamental one of the activities for the maintenance of the race is reproduction. Every living organism, whether plant or animal, possesses the power to reproduce its kind. Some plants produce spores and some produce seeds. Reference was made above to the production of the flower in plants. The flower represents the reproductive organ of the plant, and the real object of the flower is to produce the seed. Animals produce eggs from which the young develop, either through a process of incubation outside of a maternal body or an analogous process within the maternal body. In the latter case the young are brought forth as living organisms.

b. **Support and Protection of Offspring.**—Whether we consider the plant seed, or the animal egg or newborn—in any case the parental organism must provide for the support and protection of the offspring during those stages of development when it is unable to support and protect itself.

The plant deposits in or about the seed a supply of nourishment sufficient to support it during the germinating process and until it is able to gain its own support from the soil and air. Furthermore, the plant protects the seed by means of the various seed envelopes, against the cold and moisture of winter.

In a similar way the young animal is supplied by its parents with nourishment. The young bird is incubated within the egg where a supply of nourishment is provided sufficient to develop the bones, muscles, nervous system, blood, glands and covering—all developed to a point that makes the bird able to take from the mother during the early weeks after its release from the shell, such nourishment as the mother may provide. In the meantime it must be brooded and protected in the parental nest until it is able to provide for its own protection. Similarly the young mammal is developed within the body of the maternal organism to a point where it is able to perform the primitive functions of life. For weeks, months or even years, according to the class of the animal, it must be supported and protected by its parents. The human young receives milk from its mother's breast and protection in its mother's arms during its first year, after which it continues to receive nourishment, clothing and protection under the parental roof for a period varying from eighteen to twenty years, or even longer.

c. Support and Protection of Weaker Members of Society.—Young animals are supported and protected because they are unable to support and protect themselves. If they were not thus cared for the race would become extinct. Now, there are certain individuals, orphans for example, who have, through some accident, been deprived of their natural support and protection. If these weaker members of society, not yet able to support and protect themselves, were not provided for, they would perish and become thus lost to the race. From the time of primeval man to the present, these weaker individuals of society who have been deprived of their natural protectors, have been cared for by the stronger members of society and afforded such support and protection as they may need to make them independent. In a similar way the sick and defective members of society are cared for by the strong. Thus we see that the building and maintenance of orphanages, hospitals, asylums and “homes,” are activities that belong clearly to the group of phyletic or altruistic activities.

2. SOME GENERAL PRINCIPLES OF BIOLOGY.

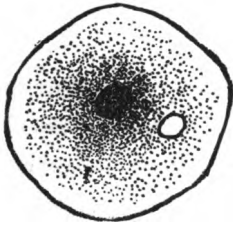
Sacrifice and Compensation in Egoistic Activities.

The thoughtful student is very likely to ask—Why does man till the fields? Why does man fell the forest trees? Why does he cultivate domestic animals? Why

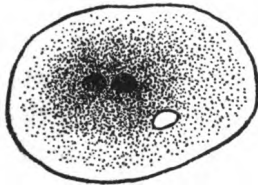
does he delve in the earth for minerals? These are all strenuous activities that require the outlay of time, talent and strength. We may say that they are sacrifices that he makes and, apparently, willingly. We have only to study the problem more closely to see that he tills the fields and cultivates his domestic animals for food; that he fells the forest trees to make for himself shelter; that he cultivates certain plants and animals to procure for himself clothing; that he delves in the earth to bring out mineral products to use in the various industries that supply various elements of his livelihood. It becomes manifest then that the egoistic activities of an organism represent sacrifice followed by compensation. The individual sacrifices in order that he may reap his reward or receive his compensation. It may be stated as a general biological truth that, *nature demands sacrifice or work on the part of all living organisms; and, under normal conditions, metes out a compensation commensurate with the sacrifice made.*

Sacrifice and Compensation in the Phyletic Activities.

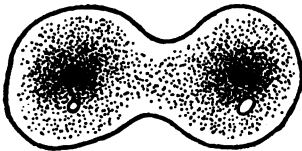
a. **Lower Organisms.**—As an example of a lower organism we may take the *amoeba*. If one watches an amoeba under the microscope he may see it move about the field, creeping along the surface of the glass plate; throwing out a pseudopodium here; invaginating a



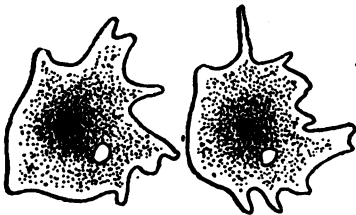
Parent Amoeba.



First Stage of
Reproduction.



Second Stage of
Reproduction.



Two "daughter"
Amoebae.

Reproduction in the Amoeba.

Plate I

mouth or stomach there; taking in and digesting minute plant organisms; transporting itself across the field of the microscope through the aid of improvised locomotory organs. All these activities are egoistic. The amoeba is putting forth effort to gain its sustenance; it is sacrificing energy to receive compensation in the form of support. If we continue to watch this minute organism we will find that sooner or later it goes into a resting stage which does not last long before we can observe important internal changes making themselves manifest first at the nucleus, which slowly divides into two equal portions that separate, each carrying with it about half of the protoplasm of the parent organism. As these two young amoebae lie side by side under the microscope the thoughtful student will inquire—what has become of the parent organism? Whereas at first there was one mature amoeba, now we have before us two young amoebae of the next succeeding generation. The parent organism has sacrificed its substance and its individuality absolutely and completely for the next generation.

It may be said in general that *reproduction always involves a division of the parent organism*. In the case of the amoeba the division is into two equal portions. In the case of some of the lower plants and animals the substance of the parent organism is divided into many

equal minute spores or eggs, each of which develops a new organism.

b. **Higher Organisms.**—These also suffer a division of their body protoplasm. However, instead of dividing into two or more equal parts and merging their individuality immediately into the next generation, the higher organisms divide off a very small portion of their protoplasm to make an egg or seed while the parent organism lives on to produce eggs or seeds on subsequent occasions.

While the parental sacrifice in eggs or spermatozoa is minute and inconsiderable in the higher animals, the sacrifices subsequent to this initial division are incalculably greater in higher animals than in the lower organisms. We can cite no better example than the human subject. The human ovum, divided off from the maternal organism, is a minute globule of protoplasm, almost microscopic in size. The sacrifice of the mother in producing the ovum is inconsiderable, but the production of the ovum is simply the first step in the sacrifice which the maternal organism makes.

The fertilized ovum makes a lodgment on the inner surface of the uterus or womb and begins immediately to absorb its nourishment from the maternal organism. It soon develops a heart and blood vessels so related to the blood vessels of the mother that throughout its intra-uterine existence the mother's blood supplies the

growing child all of the substance that is built up into bone, muscle, brain and glands, preparing the young child to come into the world a living, breathing, sentient organism. These draughts upon the vitality of the maternal organism are so great that they frequently result in a very sensible depletion of the mother's physical power, particularly manifest in the depletion of the blood.

During the period when the young child is developing within the body of the mother, she must make other sacrifices, viz., the withdrawal from society more closely within the four walls of her home where she busies herself many days in preparation of the wardrobe for the expected child. Then there are sacrifices incident to childbirth represented especially in the pain and travail of parturition. During the first year of the child's life in normal cases, it draws its nourishment from its mother's breast. This nourishment in turn is elaborated by the milk-secreting glands from the mother's blood—still further depleting her system. During its childhood and youth the mother prepares the food, clothing and shelter of her child at no small expense of her own time and strength. For years the mother holds herself ready to watch by the bedside of her child should he fall sick, and there is hardly a mother in the land who has not spent many nights in this vigil by the bed of her sick child.

We might turn now briefly to the consideration of the sacrifices that the father makes.

As is the case with mother so with the father, the initial sacrifice in the division of a portion of his body is too small to be considered, but in his case as in the case of the mother, the sacrifice for the coming progeny is only initiated with the act of procreation and continues through a period of fifteen, twenty or even thirty years—sometimes progressively increasing to the last. These sacrifices take the form, for the most part, of support and protection, and begin soon after conception on the part of the mother—as the pregnant woman usually requires much greater solicitude and care on the part of the husband than she does on other occasions.

The normal father, like the normal mother, holds himself in readiness to watch by the bedside of the sick child should the occasion arise, and to make other sacrifices incident to the protection and support of the child.

It is shown above that sacrifices incident to the egoistic activities receive their compensation. The question next demanding our attention is—do the sacrifices which are made incident to our phyletic activities receive a compensation? The most striking solution of this question would be a personal solution. Let any young man ask his parents if they have been compen-

sated for all the sacrifices they have made for him. If this son is such a one as brings pride and satisfaction to the parents it is very evident what their unhesitating answer would be, viz., that they have been compensated many times over for all the sacrifices they have made. In what does such compensation consist? It can be expressed most briefly: LOVE OF OFFSPRING. This principle of *love of offspring* seems to be a more or less general one in the whole realm of conscious living nature. That a tree could possess this no one would suggest; that a sea urchin could possess it no one would be likely to contend. It is probably possessed by all of those animals that are conscious of sacrifices; that is, if an animal is conscious of sacrifice he is capable of being conscious of this compensation which we term, *love of offspring*. For organisms too low in the scale of life to be conscious of either sacrifice or love of offspring, nature seems to have arranged another scale of sacrifices and compensations—sacrifice taking the form of contention for possession of females and sacrifice in their support and protection, the recompense being the gratification incident to sexual intercourse.

That this last factor may enter, to a certain extent, as a determining factor among the higher animals cannot be questioned. The higher we get in the scale of animal life the less the part played by *sexual gratifica-*

tion and the greater the part played by *love of offspring*. In some of the higher animals, especially those in which the family circle is maintained or the community life highly developed, there is frequently at work still another consideration that may play no small part in ameliorating or compensating the sacrifice incident to reproduction. Reference is here made to the expectation on the part of the parents that support and protection will be provided for them in their old age when they are unable to support or protect themselves. That this plays any great part in determining the procreation in the first place is not probable; but that it later becomes a matter of consideration is not to be doubted. However, in so far as these considerations of personal welfare enter into the compensation of the parents for the sacrifices that they have made for their offspring, in just so far do we remove these considerations from the realm of the phyletic and place them within the realm of the egoistic.

Reverting again to a discussion of the lower organisms—we have yet to consider the character and extent of the compensation which these organisms, which are unconscious of sacrifice, receive. The conscious sacrifice of higher animals receives a conscious compensation; similarly the unconscious sacrifice of lower organisms receives an unconscious compensation.

It will be remembered that the amoeba did not die,

but that it was *rejuvenated in its offspring*. In the next and every succeeding generation there is no death, but a rejuvenation. It thus transpires that these lowly organisms enjoy immortality; or perhaps it may be better stated, that the protoplasm of these organisms enjoys immortality and this immortality is the compensation for the sacrifice which each successive individual makes unconsciously in the division of its protoplasm. This principle of biology was first discovered and formulated by the great German Biologist, Weissmann.

Summary of Principles.

a. The propagation of offspring and the protection and support of the young and defenseless always involve sacrifice on the part of the parents and the stronger members of the race.

b. Sacrifice made consciously for the race is, in the natural order of things, compensated.

CHAPTER II
ADOLESCENCE IN THE MALE

ADOLESCENCE IN THE MALE.

The period of a young man's life from about fifteen to twenty-five years, when he is growing from boyhood to mature adult life, is called the period of *adolescence*. The period of adolescence is ushered in by a series of physical and psychical changes which make a well defined initial period called *puberty*. The period of puberty is about two years in length, and in the average case among American boys, covers the period between the fifteenth and seventeenth years, and is completed when the youth can produce fertile semen capable of fertilizing the human ovum. It is now universally recognized, however, that when the youth reaches this point in his development, while he may be called a man, he represents manhood in its lowest terms. He has not reached either a physical or mental development or maturity which justifies him in undertaking the responsibilities incident to procreating his kind. It requires in the average case a period of eight more years to develop the young man to the full stature of adult manhood, possessing his full physical and mental powers and the strength required of one who should assume the responsibilities of parenthood, so that at the age of twenty-five in the average case the young man may be said to have

reached this period of complete development and to have finished the adolescent period. We may profitably now consider more in detail some of the changes incident to this most important period.

1. PHYSICAL CHANGES.

General Changes in the Body.

a. **Pilosity.**—The human being belongs to the vertebrate class, mammalia, and as a member of that class he possesses over the cutaneous surface of the body, excepting the palms of the hands and soles of the feet, hair follicles which produce the hairy covering typical of mammals. A careful study of the distribution of the hair on the surface of the human body, comparing it with that of the anthropoid apes, demonstrates that the distribution is identical; and the “lay” of the hair in any one region of the human body corresponds exactly with that of the same region in the ape. For example—the hair on the forearm points outward and upward; on the upper arm downward and outward and so on throughout in the human and simian types. Every child comes into the world with a coat of rudimentary hair which is shed at once. Aside from the growth of hair on the head, including the brows and the lashes, the skin is quite free from any noticeable growth of hair for months or even years. Beginning at the age of pu-

berty, however, the growth of hair is very much accelerated over the whole pilous surface of the body, particularly upon the face, in the axilla and over the pubic region. It is a generally recognized law of biology, that, at the period of sexual development, the hairy mammalian character becomes accentuated. The increase in the growth of hair at this time can have only one interpretation, viz., that the ancestors of man represented a very much higher degree of pilosity than is the case with man at the present time. It is interesting to note in this connection the almost universal attempt of men to rid the face of this hairy growth by various devices, either pulling the beard or shaving it. The origin of this custom of depilation probably dates back to the remote past and has been observed as a custom among both savages and civilized peoples.

b. **The Voice.**—In all animals the voice plays an important part in sexual and social relations. In many animals the voice seems to have almost no other function than as a sex call, or a communication between mates and between parents and young. The human subject illustrates this general biological principle in the profound changes which the voice undergoes at the time of puberty. These changes in the male subject consist in increasing the depth of the larynx, thereby increasing the length of the vocal cords which in

turn modifies the pitch of the voice, usually about an octave, making it not only lower but much more pleasing in quality and greatly increased in volume.

c. Bone, Muscle and Gland.—Of incalculably greater importance than the changes described above though perhaps less noticeable to the casual observer, are those physical changes which the body undergoes during the first half of the period of adolescence. I refer to the growth of bone, of muscles and of those internal organs associated with nutrition.

The first step in these profound physical changes is a rapid growth in height that makes itself manifest about the fifteenth year. It is not at all unusual for a boy to grow from four to six inches in a year. This increase in height is very largely due to a lengthening of the thigh and leg bones. In serial homology with the thigh and leg are the bones of the arm and we find that these are undergoing an increase in length commensurate with the increase of the legs. So the boy outgrows his clothes; his coat sleeves are drawn up half way to his elbows and his trousers half way to his knees. The muscles scarcely keep pace with the bones in their growth, and tend to be flabby and to lack usual tonicity. It is difficult for the youth to hold his back straight and his shoulders back; he is awkward and ungainly in his movements and becomes easily fatigued because of the condition of his muscles.

But the muscles follow immediately in their development and rapidly gain volume and tonicity, filling out the arms, legs, back and shoulders with large masses of firm muscular tissue. The growth of these muscle masses changes the dimensions of the youth and he fills out in his girths as rapidly as, in the previous period, he increased in length measurements.

All of this increase in bulk can only be accomplished by increased activity of all the nutritive processes. The appetite is practically insatiable; the boy can eat three square meals in the day and lunches between meals. If he wakes up in the night he is hungry. To accomplish the digestion and absorption of this food material, the alimentary tract throughout, and particularly the stomach is greatly increased in size. To accomplish the distribution of the food (blood) the heart also is increased in size and strength. With increased bulk of muscle and increased quantity of food we have increased oxidation in the tissues. This requires increased respiration, which demand is satisfied by rapid development of the respiratory system. The thorax increases in dimensions in all directions; it becomes deeper, broader and longer. Not only does the thorax become more capacious but also more mobile and more responsive to the varying requirements of the system.

If we are interested in the biology of all these

changes, we need not go far to discover the natural causes at work to produce them. Nature is preparing in the youth a home builder; it is preparing an individual who can support and protect not only himself, but also a family. This equipment in the case of primitive man must necessarily be one of bone and brawn. While under the conditions of modern society the necessity for bone and brawn is somewhat less marked, the plan of nature is no less evident and no less interesting.

The Genital System.

a. Structural Changes.—The external genitals, besides showing the pudendal pilosity referred to above, are all greatly increased in size. The penis is increased in all of its dimensions, the testes become very much increased in size, the scrotum, probably because of the increased weight of the testes, is also lengthened.

b. Functional Changes.—The testes and associated glandular bodies gradually develop the power of forming perfect semen, capable of fertilizing the human ovum. When these organs thus become capable of procreation, the period of puberty is complete.

In this connection it is important to note that the development of the testes produces a profound effect upon both the physical and mental characteristics of the young man. This effect is produced through a

substance formed in the testes and absorbed into the blood and distributed throughout the body where it exerts its mysterious but profound influence. Just how this affects the mind and body will be discussed in detail in a subsequent chapter.

2. PSYCHICAL CHANGES.

Play and Work.

a. **Sports.**—Most of the higher animals, particularly man, and all races of men, devote a large part of the energies of the adolescent period to sports or games in which individuals contend with each other or teams of individuals contend with opposing teams in games that bring into play the various powers of the neuromuscular system: such as alertness of all the senses, readiness and correctness of judgment, agility, speed and strength of movement. Sports might be criticised by some because they represent non-productive expenditure of energy. On the other hand, no energy ever expended by man is so highly productive of so precious a material as results from manly athletic sports. The products of these games are the substances consumed by them, paradoxical as that may at first appear. The use of brain, muscle and glands and the consumption of the cell substances of these tissues results in the development of the nerve, muscle

and gland cells into a condition larger, better equipped and more responsive than before such use.

Thus, athletic sports, while they make draughts upon the nerves, muscles and glands, develop all of these tissues to a high degree of efficiency. The plan of nature in this instinctive indulgence in sports must be evident. Nature is educating and developing the male animal (man) to the highest possible degree of efficiency, so that sports, instead of being non-productive, lead to the development of structures possessing a high degree of value, not only to the individual, but also to society.

Furthermore, those qualities of mind that are encouraged on the athletic field between contestants in a game are the qualities that in the later serious struggles of life make most for success.

b. Productive Employment.—Hardly less important than the influence of sports is that of productive employment for the adolescent. That the adolescent youth should not be assigned tasks that overtax his physical or mental powers goes without saying, nor should he be assigned tasks that consume so much of his time that he is unable to take an active part with his fellows in field sports. However, experience demonstrates that the youth undergoes a more wholesome all around development if he takes some active part in a productive employment, than if allowed to devote

all of his energies to play. The simple fact that he is held responsible for some duty about the home or the shop develops in the youth not only a knowledge of how to do things and a sympathy with the adults who are devoting their strength largely to similar tasks, but—more important than either of these considerations—these tasks develop in him the ability to accomplish promptly and efficiently some piece of work as a duty—to do it regularly and promptly because it is a duty without any reference to a personal enjoyment in the task. If this important lesson in life is learned during the early adolescent period, it will make the path of life much less rugged than some seem to find it.

Society.

Incident to the activities of the athletic field, the youth is brought into more or less intimate contact with fellows of his kind, both of the same and of the opposite sex. While the boy of ten to fifteen delights in the forming of "cliques, gangs and crowds," the boy of seventeen delights equally in widening his circle of acquaintances. The athletic contest gives him an opportunity not only to measure his powers with those of the other young men, but also to win the respect of his young lady acquaintances. There is no doubt but that the approbation of his young lady friends for his prowess and strength as manifested in

sports, serves as a strong factor in the stimulation of athletic contests and in bringing the sexes together in a purely social capacity.

Religion.

While in his social relations the young man is seeking points of tangency with those in his own plane, in his religious experience he seeks to come into relation with his God; that is, with the power that exists in the plane above his own. In the researches of Coe and of Starbuck, made several years ago they discovered the following truth and demonstrated it as a general principle: (1) *A vast majority of professing Christians acknowledged their allegiance to God during the early part of the adolescent period; and (2) a vanishingly small percentage of professing Christians became so after the age of twenty-five.*

CHAPTER III.

ANATOMY AND PHYSIOLOGY OF THE MALE GENITAL ORGANS.

ANATOMY AND PHYSIOLOGY OF THE MALE GENITAL ORGANS.

1. ANATOMY.

The external genitals of the human male consist of the penis and scrotum, the latter containing the testes.

The *penis* of the young man who has completed the stage of puberty consists (1) of the two corpora cavernosa, as they are called, or erectile bodies, called cavernosa because they contain numerous blood sinuses which when filled cause the organ to erect. (2) Between and beneath the corpora cavernosa lies the corpus spongiosum which consists principally of the urethra. Around these three cylindrical bodies there is a sheath of loose connective tissue, outside of which is the skin.

About one inch of the distal end of the organ is differentiated into a sort of head which is called the *glans* over which, in the young child, the skin is redoubled and called the *prepuce* or foreskin. The glans is covered and the prepuce is lined by mucous membrane. Over the glans the mucous membrane is red, thin and moist and possesses numerous nerve papillæ. The prepuce, as stated above, usually covers the glans penis in young children and may do so throughout life. It is sometimes adherent to the glans. This is

abnormal, and as soon as it is discovered the adhesions should be broken up by a physician. The normal prepuce of the adolescent male should be free from the glans and should be sufficiently loose easily to retract back of the glans, a position it is likely to take in erection. If the prepuce extends half an inch or more beyond the glans penis as a little flap of skin, or if it is constricted at the opening so that it is difficult to clear the glans or to replace the prepuce when it is once back of the glans, the condition is not normal, and should have the attention of a competent surgeon.

One can easily understand the need of a prepuce in the case of primeval man, who was practically unprotected by clothing, but in the present condition of civilized races the prepuce is certainly an unnecessary appendage, and there are several good reasons why the prepuce should be removed. This operation [circumcision] is not, in any sense, to be looked upon as a mutilation, but simply a hygienic measure made advisable, if not necessary, by the unnatural conditions under which we are now existing.

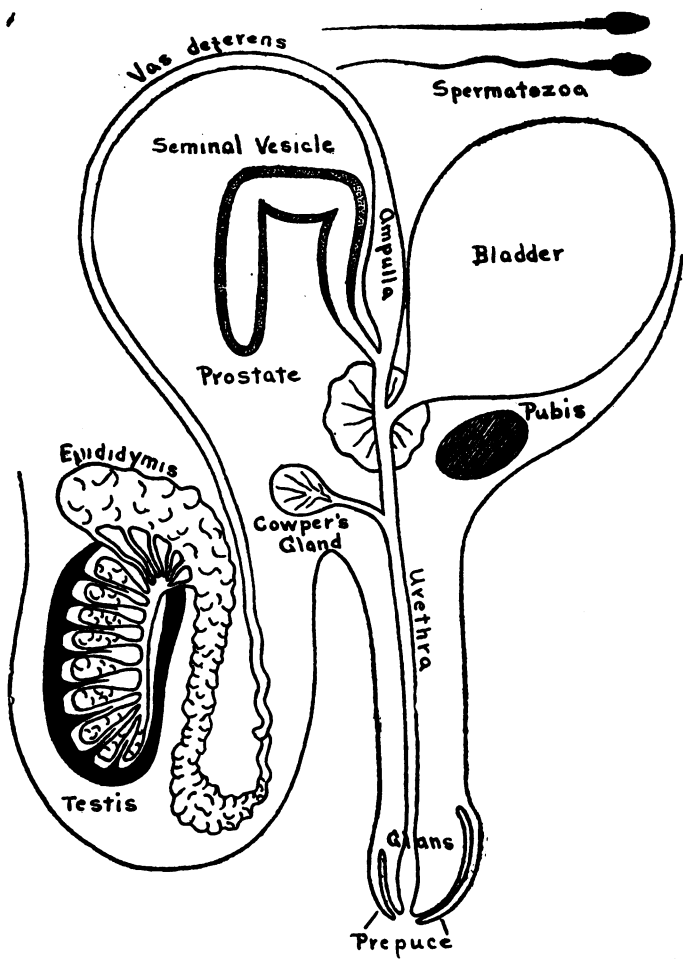
Beneath the prepuce cheesy secretions from the glands back of the head of the penis collect, and if the organ is not frequently cleansed these accumulated secretions may serve as an irritant. Such local irritation is one of the most prevalent causes of masturbation in boys.

The removal of the prepuce in young children is an exceedingly simple operation and not by any means difficult or dangerous in the adult. If the prepuce is removed the organ will need no especial care, as contact with the clothing will remove the secretions as they appear. Furthermore, the glans penis becomes less sensitive and therefore less subject to local irritation thus simplifying the young man's problems in sexual hygiene.

The penis in its flaccid state varies considerably in size, due not only to varying conditions of temperature but also to individual peculiarities. The organ may vary between $2\frac{1}{2}$ inches and 6 inches in length in the flaccid state and between 5 inches and 8 inches in the erected condition. The size of the generative organs is not an index of virility in the male.

The *testes* are the male generative glands and are described as about $1\frac{1}{2}$ inches in length, $1\frac{1}{4}$ inches in width and nearly 1 inch in thickness. The testes are contained within the scrotal sac, the outside coat of which is a thin wrinkled skin, within which are four thin coats. Next to the testes and enveloping the spermatic cord is a thin covering which is carried down into the scrotum when the testicle leaves the abdomen, where it is formed. This descent of the testes from the abdomen takes place normally in the later weeks of intrauterine life. The testes may, however,

SEMEN	TESTICULAR CONTRIBUTION.	SPERMATOZOA SEMINAL GRANULES MUCIN AND WATER
	VESICULAR CONTRIBUTION. (In quantity greater than all the rest.)	ALBUMIN ALKALINE SALTS WATER
	PROSTATIC CONTRIBUTION. (Viscid and opalescent.)	PROTEINS ALKALINE SALTS WATER



Male Sexual Apparatus

Plate II

through some unusual condition, be retained and make their descent months or even years later. If the testes have not descended by the end of the age of puberty, the advice of a competent surgeon should be sought.

The outer coat of the testis is called the tunica albuginea. [See Plate 2.] This tunic or coat sends fibrous partitions into the testis which divide the organ into lobules, each one being conical in shape with the apex directed towards the epididymis, which is that mass of blood vessels and tissues which one can feel on one side of each testis. Within these lobules the spermatozoa are formed by a complex process of cell division and cell germination upon whose description we need not enter here.

The *spermatozoon* may be described as the male germ cell whose function is to fertilize the female ovum. The spermatazoon is about 1/20 of an inch in length and consists of a head, body and a vibratile tail. In the human spermatozoon the head is ovoid, appearing pear-shaped or pointed in one view and elliptical in another.

The *epididymis* referred to above, consists of a mass of coiled tubes and blood vessels. After the secretion passes through the tortuous coils of ciliated tubes of the epididymis, it is collected into a single tube called the *vas deferens*, which passes as a part of the spermatic cord from the scrotum, up through the

groin and over the pubic arch into the pelvic cavity, passing down back of the bladder where it is slightly dilated into an *ampulla*, beyond which the duct is again contracted into a narrow tube, and the two ducts, one from either side, converge and pass into the *prostate gland*, where they empty into the *urethra*.

The seminal vesicles.—The seminal vesicles are small bladder-like organs supposed originally to contain the secreted semen collected from the testes. There are two of these vesicles, from each a small duct joins the vas deferens making up what is known as the *ejaculatory duct*. The two ejaculatory ducts coming together in the prostate gland open into the urethra. *The seminal vesicles possess glandular walls and secrete the substance which they contain, a small part only of the testicular secretion finding its way into the vesicles.*

The prostate gland, a portion of which is homologous with the female uterus and called uterus masculinus, is situated around the neck of the bladder and is traversed not only by the urethra (prostatic portion), but also by the ejaculatory ducts. There are numerous gland ducts which—collecting the secretion of the prostate gland—open into the urethra in the prostatic portion.

Just beyond the prostate are two small glands called *Cowper's Glands* whose ducts enter the urethra some distance beyond the prostate, at the root of the **penis**.

2. PHYSIOLOGY.

In the treatment of the physiology of the various structures just described, we may well reverse the order of treatment, thus leading up step by step to a consideration of the more important organs.

a. **Urethra.** The canal or duct of the penis is called the urethra, and it is important in considering its physiology to remember that it has not only a double function to perform, but that the performance of one function in a measure temporarily unfits it for performance of the other and makes it necessary for a special measure of preparation.

The urinary excretion from the kidneys collecting in the urinary bladder is passed out periodically through the urethra. This same channel must transmit periodically secretions from the sexual apparatus.

b. **Cowper's Glands** secrete only under sexual excitement, and usually they secrete only when the sexual excitement reaches a stage which induces an erection. The secretion is composed of a clear *alkaline mucus*.

The purpose served in the natural economy by this alkaline mucus is a very important one and it is essential that every young man should understand it.

It will be remembered that the male urethra affords passage not only for the urine, but also for the gener-

ative products. The urine is acid in reaction and the frequent passage of urine along the urethra leaves that duct acid in reaction under usual conditions. The spermatozoa are very sensitive to acid and their vitality is seriously impaired by acid of any kind, particularly the acid of the urine. Nature has provided that the secretion from Cowper's glands should precede the generative products along the urethra, thus neutralizing the acid and insuring for the spermatozoa an alkaline passage from the body.

Besides this important function of the secretion from Cowper's glands, the slimy transparent mucus appearing at the glans penis under sexual excitement serves as a natural lubricant covering the glans of the male organ. A secretion from the female similarly prepares her organs for sexual contact so that the delicate mucous membrane, particularly of the female organs, shall not suffer abrasion.

Many young men have experienced the appearance of the secretion from Cowper's glands and wholly misunderstanding its nature have feared that they were losing some vital fluid. This misunderstanding of the nature of this fluid makes the young man especially subject to the misrepresentations of the advertising quack and charlatan who allege that he is losing vital fluid and will, if not treated, undergo general debility and loss of procreative power. This brief ex-

planation of the significance of the secretion of Cowper's glands will protect the young man from any such misrepresentations.

c. **The Prostate Gland.**—That the prostate gland is intimately associated with reproduction is evident from the fact that in those male animals that have suffered castration before puberty, the prostate gland withers and practically disappears. What then is the rôle that this gland plays? Like Cowper's glands, it secretes only during sexual excitement. Under such excitement its ducts become gorged with a secretion peculiar to it and at the moment of the emission or the ejaculation of the semen the numerous ducts empty their contents into the urethra to be mingled with and made a part of the semen.

The secretion of the prostate is composed of a watery solution of protein and of alkaline salts and so closely similar to the secretion of the seminal vesicles that we will consider its action along with that of the secretion from the vesicles.

d. **The Seminal Vesicles.**—*The seminal vesicles secrete continuously.* The secretion is composed of an aqueous solution of albumin and of alkaline salts. This secretion together with the secretion from the prostate gland is poured into the urethra at the moment of sexual orgasm; they become mixed in their transit through the urethra with the secretion from the testes. This mixture is known as semen. [See pg. 42.]

It used to be supposed that the semen was secreted wholly by the testes; that the testes were secreting continuously and that the seminal vesicles were receptacles for the gradually accumulating semen from the testes. The researches of Steinach and others have made the old theory untenable and demonstrate that the semen is a mixture from three distinct sources; that the testicles pour their contribution to the semen into the vasa deferentia especially during sexual excitation while *the seminal vesicles secreting their products continuously become periodically filled and distended.*

Let us inquire regarding the function of this alkaline albuminous secretion from the vesicles and prostate. For what purpose does Nature prepare such a secretion? The spermatozoa frequently remain several days in the organs of the female before the ovum is found and fertilized. During these several days the spermatozoa are exerting no small amount of energy in their vigorous flagellate movement. For such an expenditure of energy they must receive nourishment and stimulation. The nourishment is supplied by the albumin and protein of the vesicular and prostatic secretions. The stimulation is supplied by the salts also secreted by these glands. The recent researches of Loeb and others have demonstrated the importance of mineral salts in stimulating the activity of living cells. One can cite no better example of this stimulant ac-

tion than the influence of these vesicular and prostatic salts upon the activity of the spermatozoa.

The vesicles and prostate may be looked upon as the commissariat of the army of spermatozoa; the vesicles accumulating a stock of supplies to be drawn upon at short notice; the prostate representing a factory where a considerable quantity of supplies can be prepared at short notice.

This *periodic distention of the seminal vesicles* is a matter of very considerable hygienic importance and must be thoroughly understood by every young man who would lead a normal sex life.

These organs in common with all other organs of the body are supplied with two sets of nerves, one set passing away to the spinal cord and carrying messages which indicate the condition of the organ or the presence and character of any local stimulus; the other passing away from the spinal cord to the organ and carrying secretory and motor impulses. The secretory impulses are more or less continuous and as a result, these glands secrete continuously and become periodically distended as described above. The motor impulses pass to the muscles within the walls of the vesicles, causing a strong spasmodic contraction of these muscles at the moment of emission of semen, thus throwing the contents of the vesicles into the urethra at the same moment when the epididymis the vas

deferens and the ducts of the prostate are emptying their secreted contents into the urethra.

Now the sensory nerves passing from the seminal vesicles up to the erection and emission centers are stimulated by any unusual pressure within the vesicles. Unusual pressure may be caused either by distention due to accumulated secretion or by pressure upon the vesicles from over-distended rectum or bladder. It sometimes happens that two or more of these influences are acting at the same time. These impulses are most likely to be effective when the subject is asleep, and particularly if he is lying upon his back. The result of the stimulus is to cause an erection, accompanied usually by an erotic dream, the whole phenomenon culminating in an emission of the contents of the seminal vesicles and ampullae, followed by a relief of the pressure which was the cause of the condition. This phenomenon has been variously called *nocturnal emission*, "pollution" and "dreaming-off."

Vecki, a specialist in physiology, hygiene and pathology of the sex apparatus, says that the nocturnal emission is a normal physiological phenomenon, the object of which is to relieve pressure in the seminal vesicles, and that in normal cases it occurs in fairly regular periods, these periods varying in length with different individuals, according to their physical condition and habits, the period being two to four weeks,

usually; though a considerably longer or shorter period would not be looked upon as pathological. Veeki describes the normal nocturnal emission as being accompanied by an erection, erotic dreams, and an orgasm, the subject being wholly unconscious of the condition until he is awakened at the moment of orgasm. Normally, the subject experiences on the following day a feeling of relief and well-being and should, normally, be wholly free from headache, depression or languor.

Inquiry among a large number of normal healthy men convinces the author that it is not at all unusual for these emissions to occur as infrequently as once in two months in normal healthy men. On the other hand, it is not unusual for them to occur as frequently as once in ten days or even once a week and still be within the physiological limit. However, when the emission occurs as frequently as once per week, it should be looked upon as abnormal if it is followed by depression, headache or lassitude. Cases are not unusual in which the nocturnal emission is experienced as often as three times in a week after which there will be a period of two to four weeks without an emission, followed again by very frequent emissions, and a free period. This phenomenon is an individual peculiarity, and is not to be looked upon as abnormal.

Cases of too frequent nocturnal emissions accompanied by languor and headache are usually caused by

irritability or lack of tonicity of the sex apparatus, particularly of the seminal vesicles and the ducts. This irritability and loss of tone is not infrequently caused by masturbation, though it may also be caused by excessive sexual intercourse, making itself manifest, of course, in either case, on cessation of the habit of masturbation or the excessive sexual intercourse.

Another cause of too frequent nocturnal emissions and one wholly separate from any abuse of the sexual function is irritability and mechanical irritation of the sexual apparatus—perhaps especially the membranous and prostatic portion of the urethra—caused by the presence of an excessive amount of oxalates in the urine. Oxalates occur in the urine in sharp angular crystals and would seem to be in a high degree irritating to the tender mucous membrane of the upper part of the urethra. The almost invariable presence of these crystals in excess in those cases that have not been accounted for by abuse of the sexual function leads one to adopt the plausible theory that the crystals are the cause of the irritability. However, we must not lose sight of the fact that these crystals may be simply an accompaniment of the too frequent emissions, and that the presence of oxalates in the urine may be caused by some disturbance in the nutritive processes that go on in the body, which disturbance causes not only the irritability of the

sexual apparatus, but also the presence of the crystals.

When the seminal vesicles are much distended it occurs not infrequently that the passage of a hard mass of fecal material through the rectum will, by simple mechanical pressure on the seminal vesicles, force out a few drops, perhaps as much as a teaspoonful, of the contents of the vesicles. This would be called an *involuntary emission*, but the liquid passed out must not be looked upon as semen. It is simply the secretion of the seminal vesicles, and in losing it, one is not losing a vital fluid or a fluid, any portion of which would be reabsorbed; he is simply losing a fluid which would, in the natural course of events, have passed away within the next few days as a nocturnal emission.

These details have been explained in order that the young man may fully understand the physiology of his sex apparatus and not be disturbed by the advertisements or the pamphlet literature of charlatans who make a business of frightening young men into the belief that in these experiences they are losing "vital fluid"—that they are victims of "lost manhood," or that they are entering into a condition of "general debility" and "impotence." As a matter of fact, an involuntary loss of spermatozoa [spermatorrhœa] sufficient to be of consequence is rarely met even in the practice of specialists and in these rare cases the condi-

tion is usually a result of sexual excesses, sexual debauchery, or one of the results of venereal disease.

e. **Testes.** No rational idea of the physiology of the testes can be given without laying down as a fundamental physiological law, that *the testes pour out spermatozoa under sexual stimulation only*. In fact, glands in general secrete only under the influence of some special stimulation. In harmony with that law, the testes secrete only under the influence of sexual stimulation.

The sexual stimulation may be subdivided into two general categories, *i. e.*, conscious sexual stimulation and subconscious sexual stimulation.

Conscious sexual stimulation is partly psychical and partly physical. The physical stimulation is produced by physical proximity of a member of the opposite sex. The physical and psychical phases of conscious sexual stimulation are so intimately interwoven that it is exceedingly difficult to discuss one without constant reference to the other, and it may be said in this connection that the psychical attitude of the two individuals of opposite sex who are brought into close physical proximity will modify very greatly their local sexual responses.

Reverting to the lower animals: When a female in rut or heat is brought into proximity to the male,

there seems to be on the part of each animal a consciousness of the character and attitude of the other animal and both animals are step by step excited by various physical contacts and probably also psychical conditions to a high state of sexual excitement, leading to the natural ultimate result, coitus, in which event the sexual excitement culminates in the orgasm of the male, which empties the secreted semen into the organs of the female.

It will be easily understood that, in human subjects whose social relations permit them to indulge in coitus, close physical proximity, and various caresses lead, step by step in the normal course of nature to sexual excitement and sexual desire which culminates as described above for the lower animals.

To revert to the function of the testes, we may say that during these various stages of sexual stimulation and excitement the testes are actively secreting thousands upon thousands of nascent spermatozoa, which being released, are hurried along, partly by their own flagellate movements and partly by the action of the cilia in the ducts of the epididymis and the peristaltic contractions of the vas deferens—hurried along the vas to the ampulla. If the period of sexual excitement extends over fifteen to thirty minutes, the whole duct system from the epididymis to the ampulla becomes gorged with the secreted testicular product. This

secretion consists of active motile spermatozoa, of spermatie granules and of mucus. The latter is secreted by the ducts of the epididymis and the vas deferens, the testicle itself furnishing only spermatozoa, spermatie granules and a small amount of liquid, just sufficient in quantity to float the spermatozoa out of the testes into the ducts.

At the moment of sexual orgasm occurs what is known as, the emission of semen. In this act the whole contents of the ampulla, vas deferens and ducts of the epididymis, the contents of the seminal vesicles, and the contents of the ducts of the prostate gland are all poured out by spasmodic muscular contractions into the urethra and by contraction of the walls of the urethra, ejected from that tube through the mouth of the urethra. Thus, in the act of emission, there is an intimate mixing together of the three contributions to the semen, i. e., the *testicular, vesicular and prostatic*.

Sub-conscious Sexual Stimulation.—Sub-conscious sexual stimulation is not accompanied by erection or any mental or physical manifestation of sexual excitement.

When a sexually mature individual is brought into more or less intimate relations with a sexually mature individual of the opposite sex under conditions where the secondary sexual qualities may have free and unrestricted play, there can be no reasonable doubt that

both individuals experience a sub-conscious sexual stimulation which will influence them both physically and psychically through sub-conscious response of their sexual apparatus. One can easily imagine, for example, that a young man may meet upon the skating rink in winter a young lady for whom he has a very sincere admiration and respect; she on the other hand entertains for him a similar admiration and respect. They may skate together the whole afternoon and converse upon politics, art or philosophy, the young woman feeling herself swung along—almost actually carried on her companion's strong arm. The whole experience is, in the highest degree, pleasurable and exhilarating to her, yet she may be conscious of absolutely no sexual stimulation. On the other hand, the young man experiences most exalted pleasure in the company of his young lady friend—through the pressure of her hand upon his arm, the lithe, graceful movement of body and limbs, the smile, the light in the eye and the soft voice. All of these give him an exquisite pleasure that he will be unable to analyze, even if he were inclined to do so.

In his case, as in the case of the young woman, there has been absolutely no conscious sexual stimulation; in the case of neither individual has there been a thought of sex as such or of their sexual apparatus, yet without a shadow of doubt, the sexual organs of

both individuals have been more or less active during this period—they have been subject to sub-conscious sexual stimulation.

In the case of the male, his testes have been awakened into an activity of probably considerably less degree than in the case of conscious sexual stimulation, and during this activity of the gland a certain amount of secretion has been formed.

The most natural question at this point is—What is the character of this secretion and what becomes of it? Recent researches show that the testicle prepares two entirely different secretions; one, *the spermatozoa and spermatie granules*, the other, *a substance absorbed back into the blood*. The former is never absorbed, and the latter never poured out of the body, but always absorbed. The former is secreted freely under conscious sexual stimulation; the latter is secreted freely under sub-conscious sexual stimulation and is absorbed into the blood. This substance absorbed into the blood, and therefore called an *internal secretion*, profoundly influences the development of the secondary sex qualities, the Virility, in the male.

An *internal secretion* is a secretion formed by a gland, to be poured into the blood or lymph system, while an *external secretion* is poured out through ducts to the exterior. The thyroid and adrenal glands form internal secretions only, which secretions, poured into the blood and lymph, profoundly affect the nu-

trition of the body. The salivary glands and gastric glands form external secretions only; which, when poured upon the food, digest it. The liver, pancreas and testes form both external and internal secretions. The external secretion of the testes is that which is poured out in a sexual emission, as described above; the internal secretion of the testes consists of substances formed by the testes of sexually mature individuals, which substances, poured into the blood, profoundly affect the development of the individual and his whole physical and psychical character.

VIRILITY.

The best example that can be cited of the effect of this internal secretion is the male of the horse kind.

Most young men have seen either at horse shows or upon farms or ranches pedigreed stallions. No person can see one of these splendid animals without admiring, if not actually standing in awe of his inimitable physical force, beauty of form and grace and power of action. He is a physical ideal of the horse kind. What is the source of his strength and beauty?

The physical features that one notes peculiar to the stallion are, first, the great breadth and depth of chest, great mass of shoulder and hip muscles, and the high arched neck, fiery eye and luxuriant mane and tail. Second, the functional features next noticeable

are the greater alertness and evident physical exuberance as manifested especially in the gait and the frequent whinnying. The thoughtful observer at the horse show or on the ranch cannot but compare these animals with the gelding.

Two colts on the ranch may be full brothers,—from the same pedigreed stallion and the same pedigreed dam. At the age of two years these two young horses may be as alike as two peas in a pod. One of these promising young animals is chosen, because of some commendable peculiarity of temperament or action, to remain unmutilated, as a procreator of his kind upon the ranch. The other is subjected to the veterinarian's knife and ecraseur and deprived of the testes,—the male sexual glands. From the day of this operation these two animals (in every respect alike, except that one is unmutilated while the other is deprived of the glands mentioned above) develop along radically different lines. The stallion develops during his third year into the noble animal described above. This third year is his period of puberty and the changes which he undergoes physically and psychically are closely parallel to the changes which the human subject undergoes during his period of puberty. The gelding, on the other hand, develops into an animal that is in every respect a neuter. Physically this animal develops a body almost identical with that of the female of the same

species. Temperamentally the gelding is a patient, plodding, beast of burden, and though under good grooming he may show considerable life, while under the control of his driver, he seldom shows any interest in other members of the horse family, either male or female, and in the pasture or on the ranch his neutral sex temperament is ever apparent. While he may contend mildly for a place at the feeding trough, he never essays the defense of any weaker members of the herd, and one stallion would put a hundred like him to flight.

The thoughtful observer of this phenomenon cannot help wondering what has made this radical difference in the development of these two animals. The solution is not far to seek. From the beginning of puberty to the beginning of senile decay, the stallion derives from the testes what is referred to above as an internal secretion.

Physiologists have endeavored to determine exactly what substance formed by the testes is reabsorbed into the lymph and blood. It may be a substance called *spermin*, by Poehl of Germany, but whatever the substance is, the physiologists have shown that *the testes form a substance which is absorbed by the blood and lymph, is carried to the brain and spinal cord and there produces these profound effects indicated above.* So we have discovered the source of the stallion's strength and beauty.

What is true of the horse is true of man. The

young man at puberty begins to receive from his testes the internal secretion which leads to the development of his full manly powers. The sum total of the qualities peculiar to manhood has been called VIRILITY. For want of a better word, this term has been applied to the sum total of the male qualities of any animal whatsoever, so that the male qualities of the stallion are also compassed in the term virility.

The thoughtful and inquiring young man will naturally wish to know at this point if this lesson from the beast of the field can be applied in all its details to the human subject; if man, without any artificial or unnatural means would develop a full and complete virility; if like the horse, he can maintain a strict continence for months or even years without suffering any abatement of virility and of physical powers in general. The unequivocal answer of the medical profession to these questions would be in the affirmative.

An exact parallel to the gelding referred to above can be found in the eunuch of the Orient. If the human male is castrated before puberty he develops into a being as different from a virile man as the gelding is different from the stallion;—a being whose physique resembles in many respects that of a woman, and whose temperament manifests qualities of cringing servility and lack of initiative.

Let us here emphasize another matter. *Spermatozoa*,

the principal element of the semen poured out in sexual intercourse, are the most highly potentialized and highly energized portions of matter in all living nature. So it must be evident that masturbation or excessive sexual intercourse depletes the system; for once the testicle is drained it draws upon the red blood of the young man for more precious material to build up into more spermatozoa.

It cannot be assumed that the condition of virility once attained will necessarily always continue—it must be maintained. To be maintained, this vital substance produced by the testes must be continuously absorbed into the blood. When once the man or boy understands this, it must be evident to him that he has, to a certain extent, the making or marring of his own virility; that it is not simply an inexhaustible endowment of nature; but, like such a natural resource as a forest or a coal mine, may be exhausted and will be exhausted if not husbanded carefully.

It is a well known fact in the medical profession that the ovaries of the female exert upon her development an influence analogous to that which the testes exert on the development of the male. For that reason, a surgeon should, under no condition, remove both ovaries (sexual glands) unless they are diseased in such a way as to necessitate their complete removal in order to save the life of the individual. If a woman of twenty-five

were to suffer the loss of both ovaries, she would go very early into a condition of senile decay. If a female before puberty is deprived of both ovaries, it leads her to develop masculine physical characteristics and her temperament is wholly lacking in those characteristics which, summed up, might, for the want of a better term, be called FEMININITY.

CHAPTER IV.

SEXUAL HYGIENE OF THE ADOLESCENT MALE.

SEXUAL HYGIENE OF THE ADOLESCENT MALE.

No rational or acceptable system of sexual hygiene for the human male can be worked out without constant reference to the lower ranks of the mammalian class and to primitive social conditions.

In our study of the anatomy and physiology of the sexual apparatus of the human male, it must have become evident that man has many things in common with other mammals, and that no adequate knowledge of man's physical or psychical attributes can be obtained without a study of similar phases of life among related animals.

All of the changes which Nature introduced into the physical and psychical development of the adolescent male were of a character to equip the individual for the maintenance and protection of a wife and children. This development has been reached by the time the young man is twenty-one to twenty-three years of age, when, in the average case, he would be able, so far as concerns his physique and temperament, to establish and maintain a home. The fact that his adolescent development is complete by the age of twenty-five, and that he has, by the time he arrives at that age, grown into the full stature of all his physical and mental powers, may certainly be interpreted as nature's indication

that his home-building should be begun not later than the twenty-fifth year. This means, then, that young men ought, if possible, to marry as young as twenty-five.

But the conditions of society at the present time are such that a large proportion of the young men, particularly those who are preparing for any of the learned professions (theology, medicine, law, pedagogy, etc.) are hardly through their professional courses by the time they reach that age, and most of them feel that they must make a start in their profession before they assume the responsibilities of supporting a home. This means that a large proportion of them marry as late as thirty years of age.

If we consider now those commercial, financial and industrial vocations which involve considerable preparation in technical institutions or a long apprenticeship (engineering, pharmacy, manufacturing chemists, banking, journalism, etc., etc.) we find that the young man is hardly able to establish such a home as most such young men feel that they must maintain on any salary that they receive before they are twenty-eight to thirty years old. This consideration applies particularly to college and university men, as, almost without exception, these men are preparing for some of the above mentioned professions or vocations.

Now the conditions of college life, the field sports

and athletics, together with the social conditions, tend to develop in college circles a body of most virile young men. The problem which now confronts us is: How may these young men live a hygienic life under these unnatural circumstances?

If a man becomes able to procreate his kind at seventeen but is hardly able to marry before he is thirty he must solve the problem as to what his attitude shall be regarding matters of sex. The earlier this problem is solved the better it is for the young man. Unfortunately, a large proportion of young men do not realize that they have any problem in this field to solve until circumstances, more or less accidental, have already established in them a mental attitude and, perhaps, a habit of life that may not be either wholesome or wise.

From what has preceded, it must be evident that from the early months of the period of puberty, through the adolescent and adult period, even until some progress is made in the senile period, every normal male will experience sexual desires. It has been shown that these particular experiences are linked, more or less intimately, with the condition of the sexual apparatus; but whatever the cause, we are confronted with the question, What shall be done about it?

When a man experiences a sexual desire does it necessarily follow that the desire must be satisfied? Some have reasoned that the muscles of the arm, if not

exercised, wither and become weak, therefore the sexual desires, if not exercised will become weak, and the sexual apparatus, if it does not exercise its function, must become withered and atrophied. While this course of reasoning may seem rational and the conclusion may seem tenable, it is well known to physiologists and sociologists that the reasoning is fallacious; the fallacy rests in the premises. It was assumed above that the activity of the sexual glands was comparable with that of muscles.

We must not lose sight of the fact that the male sexual glands are continuously active, and in this continuous activity get their exercise. This activity develops them and keeps them physically perfect after the onset of the period of puberty. Their activity consists very largely in the formation of an internal secretion, the office of which is to develop in the male the highest possible state of virility.

Nor must we lose sight of the fact that every procreative act is performed at a sacrifice of spermatozoa on the part of the male. A wanton sacrifice of vital fluid either in the act of self-abuse or in excessive venery is not justifiable under any consideration; nor may these acts, under any circumstances, be looked upon as sustaining to the gland a relation similar to that which muscular exercise sustains to muscle tissue.

In the light of these facts every normal man would

admit that frequent masturbation or excessive sexual intercourse, in wedlock or out, should certainly not be recommended as a method of developing the sexual apparatus.

Most men, however, raise the question: "Is any indulgence or any artificial means for satisfying the sexual inclination to be discouraged?" This inclination comes to us in the course of nature. Man in the primitive state would seek a mate as soon as he felt this inclination; would fight for the possession of her as soon as he had reached a sufficient stage of muscular development, and once in possession of his mate, would take her to his perch in the trees or to his cave. In his primitive home he would follow his sexual inclination, impregnate his wife and protect her against all dangers.

Under our present social conditions the young man experiences all these desires the same as his primitive ancestor, but he may not be able to choose a mate and begin with her the building of a home for a whole decade after he experiences the desire to do so. What is the solution?

It must be evident that the solution lies in the acceptance of one or another of three alternatives—either the young man may seek illicit intercourse with women to satisfy his sexual desire, or he may adopt some artificial measure, such as masturbation (self

abuse) or, finally, he may lead what is known as a continent life. By continence we mean to adopt neither one of the first two alternatives mentioned, but to leave the care of the sexual apparatus wholly with Nature.

We may now consider these three alternatives in turn.

1. ILLICIT INTERCOURSE WITH WOMEN.

By illicit intercourse with women we mean, sexual intercourse out of wedlock. The term applies either to intercourse between any man and a prostitute, between an unmarried man and a married woman, between an unmarried man and an unmarried woman or between a married man and a married woman not his wife. The term, illicit intercourse, applies to all sexual intercourse that is illegal.

In our discussion of the young man's problem, we may confine our consideration particularly to intercourse with professional prostitutes and with clandestines, or women who are willing to accept the sexual embrace for their own gratification or for money.

In this phase of sexual gratification, it is assumed that the woman has these relations with various men. We purposely eliminate from this discussion the deliberate seduction of pure girls for the purpose of sexual gratification, as such seduction is a heinous offense against the victim and against society, for which of-

fense the man is legally responsible. We are here discussing not the crimes of men, but their vices.

The question that the young man naturally asks is—"Why should society hold these relations as a vice when the woman, who is party to the act, gives her free consent, perhaps even soliciting the relation, and has given herself up to this sort of a life, either as a sole occupation (prostitute) or as an auxiliary occupation (clandestine) to supplement a wage on which she may not be able to live in luxury?"

The answer to this question is not far to seek. Women so occupied have, as a rule, made themselves incapable of maternity. They are outcasts from society, unfortunately exerting a most harmful influence on all those who come into relation with them. Furthermore, they are centers for the dissemination of venereal diseases which wreck the health of all those who become infected. But for the uncontrolled passions of men, there would be no such women. So while we, individually, as men, may not be responsible for the ruin of any one woman, we must confess that men as a class are responsible for this condition of prostitution and clandestine intercourse. An overwhelming majority of women would, if following their inclinations, seek these relations in wedlock only and for procreation only. But many a young woman, under promise of marriage, sometimes even under a bogus mar-

riage, is brought into a condition of hypnotism or into a mental state that puts her in the power of the man whom she loves and respects. If he deceives her and betrays her, continuing such betrayal until the victim becomes pregnant, he will, in the average case, leave her to bear her child in shame, while he slips away to other scenes of activity. We cannot wonder then, that the girl—deserted, humiliated, crushed by the one in whom she reposed absolute confidence; cast out of society, perhaps thrust from the protection of her own father's roof—gives up the struggle and says—*“What's the use?”*

A vast majority of such poor girls make their way to houses of ill fame and give themselves over to a life of prostitution. Hardly one of these women, if married by the man who brought her to this condition, would have failed to make a true and loving wife and mother. So society, while it casts these women out, has come to recognize that men are the real sinners in such cases.

It may be added here, that an occasional girl goes wrong through temperamental shortcomings within herself—perhaps she may even be a degenerate; but the proportion of women who would willingly and deliberately sacrifice their virtue is vanishingly small as compared with the proportion of young men who seem to be willing to sacrifice their virtue. This is

probably in part due to their training. Mothers, as a rule, instruct their daughters carefully regarding their relations with boys and men. It is in part due to the instinctive and inherent purity of mind of the normal woman.

Nature has devised a retribution for illicit intercourse in the form of venereal disease. If the parties observe fidelity to the marriage vows venereal disease is experienced in wedlock only on very rare occasions, and then through some accidental infection, as from contact with some public utensils, as a public water closet, a public towel or drinking cup. So rare is this unfortunate accident, however, that we may say, that intercourse in undefiled wedlock results normally in pleasure and gratification to both parties, while intercourse out of wedlock, or illicit intercourse, is destined, as a rule, to be visited with retribution.

What form does this retribution that nature metes out to the vice of illicit intercourse take? Besides the various psychic punishments, the principal of which are remorse, and impure thoughts, there are physical punishments in the form of venereal diseases. So prevalent are these venereal diseases among lewd women, whether prostitutes or clandestines, that specialists in this field say that "*all lewd women are diseased part of the time and some lewd women are diseased all the time.*"

These sexual diseases are contagious—that is, transmitted by contact. They are all germ diseases; one of them is practically local, one is capable of spreading the infection to contiguous organs and one is systemic.

a. **Chancroid or Soft Chancre.**—This is the least dangerous of the venereal diseases. It is a contagious disease of purely local type, usually acquired during the sexual act, the infection taking place through a break in the continuity of the mucous membrane.

Chancroid may be single, though most often is multiple. It makes its appearance in from one to five days after exposure, anywhere on the penis, but most frequently on the under side of the glans beside the frænulum as a small red spot. This rapidly takes the form of a blister containing serum and pus, and in a few days may become the size of a ten-cent piece. When the roof is removed the ulcer has the appearance of having been punched out, the floor being covered with pus. It is surrounded by a zone of inflammation and is painful.

If uncomplicated the disease runs its course in from two to five weeks. The most common complication is swollen and suppurating glands of the groin on one or both sides. This condition is termed *bubo* or “blue ball” in common language.

Sometimes serious complications arise which may

prove dangerous and require the individual to be confined to his bed for weeks.

b. **Gonorrhea.**—This is incomparably more serious than chancroid. This disease is very prevalent among the incontinent, and it is claimed by some specialists in this field that from sixty to seventy-five per cent. of men have had gonorrhea before the age of thirty.

It is a contagious disease, acquired usually during intercourse, though the individual may become infected innocently from water closets, bath tubs, etc.

To become infected it is not necessary that there be an abrasion of the mucous membrane.

The disease manifests itself in from three to seven days after exposure by swelling of the orifice of the urethra, peculiar sensations between tickling and itching, and smarting or burning during urination. The peculiar sensations fix the attention to the genitals, thus causing frequent passage of urine.

These symptoms increase for about a week, when the disease reaches its maximum degree of severity, which is maintained a variable time, the discharge from the urethra being thick, creamy and of a greenish yellow color.

In the majority of carefully treated cases, the discharge ceases in from three to six weeks with apparent recovery. Unfortunately, however, there is frequently a tendency for the disease to become chron-

ic. The discharge becomes thin and more watery and persists for an indefinite period. This condition—chronic gonorrhea—is commonly known as “gleet.”

c. **Syphilis**, popularly termed the “pox,” is a constitutional affection of the type known as “blood diseases.”

It is by far the most important and most greatly to be feared of the venereal diseases. No disease has been so wide-spread in its dissemination or more potent in its influence upon humanity.

It has been known for centuries, having been mentioned by Japanese historians and in Chinese writings two thousand years ago.

Syphilis is contagious and is transmitted by inoculation. The infectious material enters the broken surface of either the skin or mucous membrane, called “contact” or “acquired” syphilis. When it is transmitted by the mother to the embryo, it is called “hereditary” or “inherited” syphilis.

The disease manifests itself first in a “*primary lesion*” which is a local ulcer (hard chancre) at the point or points of inoculation at a period ranging from ten to thirty days after exposure. It may appear as an erosion or as a dry scaling and indurated papule, varying in size from a pin-head to a silver dollar. The base of the ulcer is indurated. It is oval in shape, perhaps somewhat irregular, with a raw surface and red colored base devoid of pus.

Immediately following the appearance of the chancre, the glands in direct connection with it become enlarged, hard and rarely painful, but they have no tendency to suppurate like the enlarged glands of chancroid.

The chancre disappears in a few weeks and then there is a period when the individual has no outward manifestations of the disease. In about six weeks after the chancre the so-called *secondary symptoms* make their appearance. They are heralded by headache, pains in the limbs and back, nausea, sleeplessness and nervous irritability and fever, followed by the appearance of a rash upon the face and body, falling out of the hair, sore throat and mouth. These symptoms disappear to be again followed by a period free from symptoms. After a longer or shorter time the so-called *tertiary symptoms* make their appearance, which are many and varied.

The disease presents a succession of morbid constitutional disturbances, appearing at variable intervals, and pursues a chronic course.

This disease remains in the body for years and affects the most vital organs, particularly the brain and spinal cord.

When one is infected with this disease he should seek the services of a reputable physician. The treatment of this extends over a long period, usually about

three years, and must be strictly and conscientiously carried out. Marriage upon the part of an individual once infected should be only upon the approval of a physician.

After having detailed, as above, the terrible consequences of the venereal diseases, it is hardly necessary to add that the young man who deliberately seeks any of the usual chances for illicit intercourse, is more than taking his life in his hands. If infection with a venereal disease meant simply the death of the infected individual, it would really be very much less deleterious to society than is the present condition. When the young man "sows wild oats" and catches incidently gonorrhea, that twenty years ago was considered a sort of a "good joke," he will, in a large proportion of cases, lay the foundation for broken health and will run a serious risk of transmitting the disease to an innocent, pure wife.

When a woman catches this disease, particularly from her husband, she is very likely to interpret the discharge as a leucorrhea, may say nothing about it to her husband or her physician, but adopt simple home treatment with antiseptic and astringent douches. Such treatment will usually result in allaying the inflammation in the superficial organs, but will not eradicate it from the deeper organs. It spreads to the uterus, Fallopian tubes and ovaries and may even

affect peritoneal tissues, first of the pelvis, then of the abdomen—may even finally affect the heart and joints. Of course, these are rather the extreme limit, but they are not at all rare cases. Once this terrible disease gets into a woman's organs, it is very likely to lead to a sojourn in a hospital where she loses some portion of her body as a sacrifice to this mogul of gonorrhea.

It is claimed by specialists in this field that at least sixty-five per cent. of the operations that women are subjected to in the hospitals for diseases of the pelvic organs are the results of gonorrheal infection. Besides the cases that require operation, a large proportion of cases of sterility is due to gonorrheal infection, either in the man or woman, or both.

If we consider the revolting sequences of syphilis with its train of operations, and progeny of scrofulous children, it would seem to make the natural retribution for illicit intercourse infinitely outweigh any brief pleasures derived from the enjoyment of the stolen fruits.

It hardly seems possible that any young man who knows the whole truth about these venereal diseases and their terrible after-effects could be tempted to indulge in illicit intercourse.

2. MASTURBATION.

The vice of masturbation or self-abuse is very likely to be learned in boyhood, perhaps even by boys of six or eight years of age through their associations with obscene playmates. It not infrequently happens, however, that the habit is learned independent of these evil associations. It has been explained above that secretions frequently accumulate under the prepuce and accumulating there serve as a local irritation, causing itching of the organ. This local irritation leads the boy to attempt to allay the irritation through rubbing. Such manipulation of the organ is very likely to excite it and to lead to the discovery on the part of the boy that such local manipulation may lead to pleasurable sensations of momentary duration. If he has not been instructed by his parents that these organs are sacred to the uses of manhood and that they will be injured if handled during childhood, he is very likely to repeat this act until it becomes a more or less fixed habit.

While it must be admitted that anything short of extreme excess in this habit among little boys will not be permanently injurious if the habit is stopped at puberty, it must be perfectly evident that if a boy enters puberty with this habit, the psychical and physical conditions of puberty are such as to make the habit very difficult to stop. If it is not stopped a

serious injury may result. So the necessity hardly need be further urged for explaining to young boys that these organs should not be handled.

After the boy enters puberty, the habit of masturbation either acquired during puberty or carried into that stage from early boyhood, begins to have a distinctly deleterious effect.

Let us now consider just what is the character of this deleterious effect. From what we know of the physiology of the sexual apparatus, it must be evident that a sexual orgasm could be produced during waking hours only through strong stimulation of the activity of the testes, accompanied by liberation of spermatozoa and of the other elements of the vital fluid. Let us not forget in this connection, the statement made above: that the testis produces two forms of secretion, the internal secretion and the external secretion, the internal secretion being absorbed, produces those male characteristics which we group together under virility, while the external secretion is used for procreation. Spermatozoa do not make any part of the internal secretion. One reason for this must be evident, i. e., that being cellular elements, they could not pass through the vessel walls and be absorbed into the blood current, and if they could, by some special adaptation, get into the blood current, there is no conceivable action which they could per-

form in the body. So, while the semen alone is lost in the act of masturbation the formation of internal secretion is undoubtedly interfered with.

The distinctive element of the external secretion of the testicles is the spermatozoon. Spermatozoa are formed by a process of cell-division called spermatogenesis. When we say that the testicles secrete under sexual excitement only, we mean that they release spermatozoa under sexual excitement. The spermatozoa must be looked upon as the fertilizing element of the semen, while the liquid portion of the semen contains the spermatogenic granules whose function in the procreative act is quite unknown to physiologists. However, they may have an important rôle to perform in the fertilizing function.

If the adolescent young man is leading a continent life, we may assume that from time to time he is subjected to conditions which serve as strong sexual stimuli, arousing in him a definite desire for sexual intercourse; but leading a continent life, he curbs his desire and fixes his thoughts upon other subjects. In this way, though the sexual excitement is brought quickly under abeyance, we can rest assured that a certain number of spermatozoa have been released from the testes; and that the other secretions have been increased in volume. The excitement may be sufficient even to cause an erection, and produce a few drops of the

secretion of Cowper's glands. The spermatozoa, together with a small amount of the liquid secretion, will make their way gradually along the vasa deferentia and collect in the ampullæ. Some of the spermatozoa may make their way from the ampullæ into the seminal vesicles, thus mixing with their special secretion. The small advance guard of spermatozoa that may have made their way to the ampullæ will undergo a gradual decrease of their nascent activity, as the days go by. On the occasion of the next nocturnal emission the ampullæ will empty along with the seminal vesicles and these spermatozoa pass out. If they be examined under the microscope as a part of a normal nocturnal emission, they will be found to be almost motionless or very greatly lacking in typical spermatozoan activity.

Now let us suppose that the young man, instead of curbing his sexual appetite, resorts, after a season of erotic imaginations, to the act of masturbation. We may picture the seminal ducts, vasa deferentia and ampullæ as being gorged with the secretion of the testes, including, of course, myriads of just released and nascent spermatozoa, together with several cubic centimeters of the liquid portion of the testicular secretion. The act of masturbation causes an orgasm and leads to a complete emptying of all these ducts. Thus we note that in this case the virile fluid is wasted and the blood will be drawn on by the testes for

material to build more spermatozoa. Nature's ends have been defeated. The system suffers a certain degree of depletion from which it recovers only after hours or even days. It must be evident from this picture of the processes that go on in the male sexual apparatus incident to the act of masturbation that the act cannot be performed repeatedly, as it naturally is when it becomes a habit, without interfering with the virility of the adolescent male.

In the study of a large number of cases the author has found that the principal *physical* changes that occur in a young man as the result of this habit are, flabbiness of muscle and clamminess of hands. The really virile man possesses firm muscles and clear, direct eyes and a strong grip; usually also a warm grip.

It has been thought by some that pimples on the face are a sign of masturbation in the youth, but such is not the case. They are a sign of lack of elimination through the kidneys and bowels and are not to be interpreted as having any essential relation to masturbation. There may possibly be an incidental relation growing out of the fact that in some cases of masturbation that habit seems to affect the nutrition and that in turn may cause the appearance of pimples on the face of the adolescent. However, one must be very slow to pass judgment in these cases.

Not the least important among the results of masturbation is the attitude of the victim to society in general. This *psychical* change is noticed in immoderate cases of masturbation and takes the form of disinclination to enter into any physical contests, or games; and disinclination to cultivate the society of the opposite sex. Here again one must be conservative in his judgment, because there are individuals who possess a very retiring temperament naturally, and who may become so engrossed in study or productive work that they take little share in the society of either sex, so that individuals who may be wholly innocent of any abuse of their sexual apparatus would suffer a very grave injustice if they were classed among the masturbators. So allow the author at this place to emphasize the importance of never passing judgment on anybody in these matters on circumstantial evidence.

While the damage that one may do to his system through the practice of masturbation may not be very serious, in many cases that have come under the author's observation in which the habit has reached extreme limits, very serious, sometimes irretrievable damage has been done, yet the encouraging feature of this whole matter is, that if the adolescent youth, who is practicing this habit, is warned of its danger and stops at once absolutely, nature comes to his rescue, and gradually, step by step, but surely, rebuilds the

whole fabric of his virility, bringing back gradually the flush of perfect health into his cheek, the light of perfect manhood into his eye and the tone of perfect virility into his muscles.

This change can be wrought in from one to three years of absolute continence. Nature, like a loving mother, heals the wounds of her child with a kiss.

3. CONTINENCE.

Such frequent reference has been made above to continence in antithesis to illicit intercourse and masturbation that little need be said in addition to that which has preceded. The young man who holds before his mental vision an ideal of the home he hopes some day to establish—in which a pure wife reigns as queen, sovereign of his life, and gently hovers over a brood of lusty boys and fair girls—cannot for a moment consider as a sane solution of his sexual problem, periodic visits to the house of ill fame or the periodic lapse into illicit intercourse with clandestines; nor can he expect to develop his powers, physically or intellectually to the highest possible degree if he permits himself to contract that habit [masturbation] which, step by step, undermines his development. There is open to the young man only one of the three alternatives mentioned above, i. e., TO LEAD THE “CONTINENT LIFE.”

The continent life is a goal which every healthy

young man should strive to reach. To arrive at a goal that is before us and above us requires sacrifice and brings compensation. The sacrifice takes the form of the exertion of the whole will power of the man and the painstaking observance of those rules of hygiene which make continent living more easily attainable. The compensations of continence are those that come from the assurance that the young man has of his virility, of his worthiness to take the hand of a pure wife in wedlock, of the consciousness of his ability to establish and maintain a home, and to protect this home against all dangers.

CHAPTER V.

HYGIENE.

HYGIENE.

It is proposed in this chapter to outline, very briefly, a few simple rules of hygiene, the observance of which will tend to bring the young man into the highest possible state of physical development. Assuming that he wishes to lead a continent life, the observance of these rules will make that much desired condition more easily attainable.

1. DIET.

a. **Choice of Food.**—The young man who is boarding at a restaurant or in a boarding club can modify his diet only within the range of the menu provided. Fortunately, the young man can observe the most important rule of diet, i. e., *to eat abstemiously*. Wherever one is boarding he can eat temperately; he can avoid highly spiced foods, tea and coffee. The observance of these simple rules will go a long way towards simplifying his sexual problem. It has been discovered by the study of the influence of diet upon sexual appetite, that the heavy eating of rich and highly spiced foods, indulgence in stimulants and narcotics, all tend to excite the sexual desires.

The author presents a menu that would be looked upon as a temperate one for a student:

Breakfast.

Fruit

Well cooked cereal breakfast food with cream
or a slice of bacon, an egg, with bread and butter

Glass of milk, cocoa or cereal coffee

Dinner.

Soup

Meat, potatoes and gravy

One vegetable

Dessert:

(Custards, tapioca pudding, rice pudding, gelatin pudding or bread pudding)

Water

Supper

Creamed potatoes

Salmon or sardines

Bread and butter

Canned or stewed fruit

Cocoa or milk

If lunch is served at noon and dinner at night, the supper and dinner as given above would correspond with lunch and dinner when dinner is served at night.

If the young man is training heavily for foot ball or other heavy athletics in which a training table is provided, he may eat a much heavier diet than the one

above outlined, having either eggs or meat three times a day instead of once or twice and larger portions of each food. However, even the man in athletic training needs less food than is customary for men in training to take. If the foot ball teams would eat somewhat less than they do and a smaller proportion of meat, they would be much less likely to "train stale."

b. **Stimulants and Narcotics.**—It will be noted that no provision is made for coffee or tea in the above menu. The general conditions of life in a student community serve as a sufficient stimulation. Tea and coffee are stimulants, and on general principles, it is not wise to use stimulants unless one needs them. The college student does not need any other stimulant than is afforded by the conditions in a college community.

It may be fairly said that stimulants never benefit anybody who does not need them. On the other hand, they may easily injure a person who does not need them. Coffee for example, or tea, not only does not assist digestion but actually retards it. All stimulants produce a quickening of brain activity which is uniformly followed by a reaction in which the brain activity is either slowed or confused. The coffee drinker is almost certain to experience within an hour after a cup of strong coffee an exhilaration, with heightened brain activity. If one could experience this stimulation without any reaction, it might be advisable, es-

pecially for those who need just such stimulation at just such a time. However, when one considers that he cannot experience stimulation without experiencing a compensatory depression, he will see that it certainly does not pay to get the one at the expense of the other, except under unusual conditions.

Now the question may naturally arise: What occasion would justify the drinking of a strong cup of coffee? Suppose that one were due in an examination and that he had only one examination in a day; suppose it came at 8 o'clock. Let the student retire early the night before, rise early, take a walk before breakfast and eat a very light breakfast. He may take a cup of strong unsweetened black coffee with the breakfast. He will find that this coffee proves a strong stimulant, particularly if he has not been using it regularly, and that it produces the stimulation just when he wants it. He will find that he is better able to marshal his thoughts and to recall the various facts that he may need to use in formulating his answers to the examination questions. Under such conditions the author believes that it is justifiable for a student to use coffee. But we must not forget that the coffee is a drug; used for its drug action; used to produce a physiological effect at a definite time. Having produced that effect, one may expect the depression to follow after the examination.

Now the natural tendency, and a tendency which causes many people to pass step by step into an excessive use of this stimulation, is to relieve the depression which follows the first cup of coffee by taking another cup and so on, taking coffee at each meal and perhaps occasionally between meals. While some people of phlegmatic temperament can stand such a drug habit for years without being very seriously injured, it is certainly a habit to be strongly discouraged. A person who does not use coffee or tea regularly, but wishes on rare occasions to get a stimulation, can resort to it to produce that effect, but after having gotten the effect let him get over the depression as best he can, and not relieve it by taking a second cup.

If he has a week of examinations, it might be permissible to follow such a regime as suggested above throughout the week. On the whole, however, the use of these stimulants is to be discouraged.

Narcotics are those drugs which cause narcosis or a dulling of the senses and a decreased activity of both the muscular and nervous system.

One of the most common and typical narcotics is opium. Derived from opium is morphine. Cocaine belongs also to the narcotics as do the anæsthetics, such as chloroform, ether and common alcohol.

It is hardly necessary to say anything about the use of alcohol to intelligent college men. Very seldom

do college and university students resort to alcoholic drinks, either for their drug effect or in a spirit of conviviality.

The intelligent people of the country realize the dangers that follow the use of alcoholic beverages. It is very rare that educated people use any alcohol and when used it is only in most moderate quantities, and usually, on special occasions.

It is only comparatively recently that the absolute truth of the Bible dictum that, "Wine is a mocker" has been realized.

Brandy and whiskey were taken for generations to make one warm on a cold day because it gave one temporarily a flush of warm blood to the skin, only to cool down the temperature of the body later, so that instead of raising the temperature of the body, alcohol actually lowers the temperature of the body.

Many people took alcohol when excessively hot to cool the body, but if the temperature of the outside air is higher than the temperature of the body, as is the case on excessively hot days in summer, the rush of blood to the surface would only have the effect desired in the first few minutes of the action of the alcohol. The skin would tend to become dry, the temperature of the blood to rise, subject to the influence of the hot air. This heated blood striking the vital organs accounts for the fact that on those excessively

hot days, when there are many sunstrokes, most of them are among men who not only habitually take alcohol, but who are under the influence of alcohol at the time.

Many people have taken alcohol to improve digestion, but scientific observations on digestion under the influence of alcohol have shown that the digestion is actually retarded.

Many people have taken alcohol to make their muscles strong, and one does actually imagine that he is stronger after a moderate dose of alcohol, but many careful experiments on the part of numerous observers have shown that the muscles are really less strong and can do progressively less work the larger the dose of alcohol.

Many thought that alcohol would stimulate the action of the brain and have taken it for that purpose; but experiments have shown that while there is temporarily a greater activity of the brain, this activity is less under control of the higher brain centers. The after dinner champagne may loosen the tongue of the post-prandial speaker but he may say many things which the judgment would not commend.

So, in all those applications that men have made of alcohol through the ages, we find on careful examination, that in every case the alcohol actually has an effect opposite to that which has been attributed to it.

How true then are the words of the Bible: "Wine is a mocker."

If an alcoholic beverage actually helped the muscles, the brain or the glands, one would find it seriously commended by athletic trainers and coaches for preparation in athletic contests; one would find it commended by the trainers of prize fighters to help them in their preparation and in the final encounter; one would find it recommended by mountain climbers and by Arctic explorers, to stimulate the muscles for the exhausting ordeal of mountain climbing or to protect the system from the penetrating cold of the northern latitudes; alcoholic beverages are, however, not only not advised by these men for these purposes, but on the other hand, all participants in these activities are positively forbidden to use any alcoholic beverages, even in the smallest quantities.

So the young man who would develop a clear thinking brain and a sound body must leave alcoholic beverages alone. Further, the young man who would have absolute control of his sexual desires, must leave alcohol alone, for the first thing that alcohol does is to throw down the lines of control. It is under the influence of alcohol that the young man is almost sure to make his first visit to the house of prostitution. If a girl lose her virtue, it takes place in a majority of cases when she is under the influence of alcohol; but for this

influence lessening her control, she could not be seduced. *Hence one of the requirements of continence is TOTAL ABSTINENCE.*

Under the head of narcotics must be classed also tobacco, though tobacco has several other effects than the narcotic one. It exerts upon the mucous membranes an irritation and that is the reason why the mucous glands of the mouth secrete so freely when one chews or smokes, but the influence upon the nervous system is distinctly of a narcotic character, and while tobacco is a mild narcotic, and while it can be used by the adult moderately without serious results; this is certain, that no man has ever been benefited by the use of tobacco. And while many men have been injured, even by the moderate use, all men are injured by the excessive use. Furthermore, boys and young men who have not attained the full stature of their physical development are very seriously injured and retarded in their development through even the moderate use of tobacco. There is not an educator in America who will not testify to the fact that the use of tobacco in any form by young boys, retards both the physical and mental growth.

So tobacco certainly is another thing that is altogether proper to leave alone, and its use at the very best cannot be defended on any grounds other than that it is a sense gratification. And while it must

be admitted that it may serve as a sense gratification in the case of the individual who participates in it, it must also be remembered that tobacco smoke or the smell of tobacco is, in a very high degree distasteful if not actually loathsome, to a large proportion of society, and the young man who gratifies sense at the expense of his neighbors, certainly is on the defensive.

In so far as tobacco is a narcotic, in just so far does it disarm and put to sleep those aesthetic and moral impulses which are so helpful in the maintenance of the continent life.

c. The Dietetic Control of the Bowels.—A most important hygienic rule is to maintain a strict regularity of the bowels. By regularity of the bowels we mean, a free, normal passage of the bowels at least once in twenty-four hours. Two or three passages in twenty-four hours are not too many.

A tendency towards constipation may be hereditary. The writer finds that at least one case in four of persistent chronic constipation among college men seems to be due to a hereditary tendency.

Those individuals who have from early infancy and throughout their whole life suffered from a tendency to constipation and perhaps from actual chronic constipation, find it exceedingly difficult to produce normal regular daily movements of the bowels. Whether constipation is chronic or occasional or whether it is heredi-

tary or acquired, in any case, it should be corrected if possible through modification of the diet, and of daily habits.

First of all, one must remember in this connection that the lower bowel or rectum is subject to education, and not by any means the least important factor in overcoming a tendency to constipation, is the regular morning visit to the water closet.

The author would discourage the habit which some have of "straining at stool." This act of straining at stool together with the pressure which the hard fecal masses make on the blood vessels, increases the blood pressure in the veins of the rectum to such a high degree that it is likely to cause hemorrhoids or piles. But if the position favorable to the passage of the bowels be taken regularly, every morning, and a reasonable time spent in that position, and if the daily passage is brought about at that time, the muscles of the rectum will be educated to the point of contracting upon its contents at that time and under those conditions regularly, and this will be a strong factor towards regulating the movements of the bowels.

But the most important thing to consider in this condition is the dietetic regulation of the bowels. There are some foods that tend to constipate while others act as a laxative.

Such foods for example, as contain a considerable

portion of tannin, are always constipating. Strong teas have a constipating effect, particularly such as the bitter English Breakfast teas, in which there is a very large proportion of tannin. This large percentage of tannin accounts for the prevalence of constipation among female tea drinkers.

Unripe fruits contain a high percentage of tannin which, in the ripening processes of the fruit, becomes changed into cellulose and sugar. Any fruit that quickly turns brown after a cut surface is exposed to the air and that stains a steel-bladed knife black quickly when the fruit is cut, possesses a high percentage of tannin, and is not in a wholesome condition to eat. Unripe peaches and apples possess this characteristic. These fruits should be eaten only when ripe.

If one's diet contains too small a percentage of cellulose or pulp material, a tendency to constipation will be noticed. It has been found from investigation of this subject that the cellulose or undigested material of the cereals, vegetables and fruits, is an absolute essential to good bowel action. The cellulose makes bulk in the bowels and the simple presence of this bulk of undigested material stimulates the muscular contractions.

If one were to choose for example, a diet of meat, eggs, nuts, corn starch, tapioca, sugar, fats and oils, i. e., diets which will be almost completely digested and

absorbed, leaving a very small amount of undigested material in the intestines, the bulk of the material in the intestines would be so small that they would not be stimulated to contract. Therefore this small bulk of material, together with certain excretions from the liver and other organs, would be retained in the bowel and undergo fermentation there. Injurious substances which result from the fermentation would be absorbed, causing what is known as autointoxication, complicated with constipation. If one, however, mixes with the condensed foods named above a good proportion of cereals, fruits and vegetables, all of which possess a considerable percentage of undigestible material, the presence of this undigestible material in the intestines leads to strong peristaltic movements, causing the passage of this material along the intestinal tract to the rectum, which will be periodically evacuated. In such cereal foods as the coarser meals (like oatmeal, various wheat preparations and corn meal), the proportion of bran substance serves as a local stimulation to the intestinal activity. The little bran scales being sharp-cornered and rough, serve as a local irritant or mechanical stimulation.

What has just been said regarding the advisability of eating some coarser cereals must not be taken to mean that white bread is not wholesome. On the other hand, white bread made from the roller process flour

is in a high degree nutritious and wholesome, and may well make an important part of any dietary.

It is not hygienic to eat white bread or biscuits hot out of the oven. These hot breads tend to form doughy masses which are almost completely impervious to the digestive juices, and while they are eventually digested, it takes a very much longer time to do so than would be the case with stale bread, which is so readily masticated into a creamy consistency. If one is subjected to conditions where he must either eat hot biscuits or perhaps embarrass a most hospitable hostess, there is only one thing for him to do, i. e., to eat the biscuits.

It is possible, though difficult, to masticate hot bread so perfectly that it is reduced to a smooth, creamy consistency, and no one should ever swallow any bread which has not been so masticated.

Among the fruits, figs, prunes and apples seem to have the most clearly marked laxative effect, though all ripe fruits generally, and especially those that are taken uncooked, have a moderate laxative effect. Belonging to this class of foods is rhubarb which, though not a fruit, is usually served as a fruit either stewed or in puddings or pies. There is no doubt that it exerts its laxative effect better if taken stewed rather than with pastry.

If one then who is annoyed by a tendency to constipation wishes to correct it, a rational change of diet

would be, *to eat freely of cereals and coarse breads and of various fruits, particularly apples, figs and prunes.*

The most effective way to use these laxative fruits is to eat freely of them just before retiring. The apples and figs may be eaten just as they are received from the market. Prunes may be soaked in cold water for twenty-four hours, then taken directly from the cold water and eaten.

If this is not effective a supplementary regime may be adopted that is only in part dietetic, i. e., *to rise ONE HOUR BEFORE BREAKFAST, drink two glasses of cold water and take a brisk walk of fifteen to thirty minutes.* The cold water has a tonic effect upon the stomach, preparing it for a rapid digestion of the breakfast. It also washes out the accumulation of mucus in the stomach, which may easily equal a pint in volume. This pint of mucous plus the pint of water, making a quart of liquid altogether, pours through the pylorus, and during the rapid walk, works its way rapidly down through the alimentary tract, washing the whole tract and preparing it to receive and rapidly to digest the next meal. This slimy water, having washed out the stomach and small intestine, then passes into the large intestine, moistening and lubricating its contents and causing it to move gradually towards the rectum, where it stimulates a normal free passage of the bowels after breakfast.

Any usual case of constipation will yield to this treatment. Such a treatment is incomparably more rational than the taking of medicines.

d. **The Dietetic Control of Sleep.**—Most students study evenings. If their heavy meal is a dinner at 5:30 or 6 p. m. they are likely to feel very drowsy by 7:30 or 8 o'clock. This is a perfectly natural experience, all animals manifesting a drowsiness after a heavy meal. If one could lie down and sleep for an hour while his dinner is digesting, he could probably rise at 9 o'clock and put in two or three hours of good hard work. He would find himself at 11 or 12 o'clock so thoroughly awake, however, that he might have difficulty in getting to sleep if he retired at that hour. If, on the other hand, one has his dinner in the middle of the day and a light supper at night, he is able to begin studying within an hour after supper and keep it up until he is ready to retire. In this case also, he is likely to be so wide awake at the time of retiring that he may have difficulty in getting to sleep. In either of these cases, it is altogether proper and advisable to take a light lunch before retiring. A double purpose can be served by this lunch. In the first place, the taking of anything into the stomach that requires digestion tends to deplete the circulation from other organs (brain in this case) to the stomach. In the second place, the food may be so chosen as to exert a definite *somnolent* ef-

fect. Such foods are, *celery, lettuce, onions, warm milk*. It may not be convenient to get warm milk at midnight, but it would hardly be inconvenient to provide one's self with two or three graham crackers and a stalk of celery. These with a drink of water and a little brisk exercise before an open window ought so far to divert the circulation from the brain as to enable one to fall asleep quickly.

e. The Dietetic Control of the Kidneys and Skin.—

The stimulation of excretion through the kidneys and skin may be an exceedingly important thing, particularly if one has just caught a cold and wishes to establish free excretion. The food which has a most clearly marked effect upon both kidneys and skin is the juice of the citrus fruits. These fruits, as they appear in our markets, are *lemons, oranges and grape fruit*. All of these fruits are in a high degree wholesome as an addition to the dietary. Lemon juice is far more wholesome than vinegar in salads. The juices of lemons and oranges make most refreshing and deliciously cooling drinks in summer, and on occasions where one wishes *to get a strong stimulation of the kidneys and skin, he has only to drink large quantities of hot lemonade.*

f. The Dietetic Method of Curing a Cold.—A whole *quart of hot lemonade* may be taken on retiring after one has caught cold. The effect in such a case would be to cause a free sweating and copious urination. Both

the action of the kidneys and the skin would tend to carry away from the system the effete materials that have been retained as a result of the cold.

It is hardly necessary to add in this connection that care should be taken that during the sweating or immediately following it, the *body should not be exposed to catch more cold*. In this method of treating a cold, one should *take a strong cathartic* such as two or three teaspoonfuls of castor oil, and should remain in bed twenty-four hours. During this twenty-four hours *no other food than a little light broth should be taken*. This treatment usually completely breaks up a cold and one is able, in two or three days, to make good the loss of the twenty-four hours, during which time he was confined to his room.

This dietetic method of caring for an acute catarrhal cold is incomparably wiser and more economical than to drag around, hoping to "wear out the cold," only to be worn out by it.

2. BATHS.

a. **The Bath for Cleanliness.**—Little need be said regarding the bath for cleanliness except that it should be taken at least once in a week during the colder portion of the year and perhaps as frequently as once a day during that portion of the year when there is free perspiration.

Where one is bathing for cleanliness he may well use soap and warm water over the whole surface of the body. If he takes this bath just before retiring, it is not necessary to take a cold shower or sponge at the end of the bath. If, however, one takes a warm soap bath in the morning the relaxing effect of the bath upon the skin makes it necessary to take a cold shower or a cold sponge after the warm bath in order to secure the tonic effect upon the skin and fortify one against catching cold.

During the hot weather when one may bathe daily for cleanliness he should guard against an excessive use of soap, as a daily soap bath may have a tendency to remove the oils from the skin so completely as to make the skin rough. With the daily bath for cleanliness it is possible that warm water and soap need not be used more frequently than once or twice a week and that a laving of the whole surface with cold water followed by a vigorous rub down with a coarse towel may serve the double purpose of insuring absolute cleanliness, and at the same time serving as a skin tonic.

In this connection the author would emphasize the importance of insuring absolute cleanliness of the sexual apparatus. In primeval conditions less attention was necessary as these organs were more or less exposed, but the present method of dress is such as to permit the accumulation of the skin secretions. While

these may in part be removed by the friction against the clothing, it is advisable to wash the external genitals and all neighboring surfaces as a regular part of the daily toilet.

b. **The Tonic Bath.**—In warm weather when one takes a daily bath to insure cleanliness, at least five of these baths each week may be in cold water, sufficiently cold to secure the tonic effect as described above. In cold weather, when one takes not more than one or two warm soap baths a week, the cold tonic bath can be made to serve a most important purpose in the hygiene.

Some have followed the custom of immersing the body completely in a tub of cold water. This method of taking the cold bath is not to be recommended except for those who are in the most robust health, and in these cases, so vigorous a treatment is not necessary nor particularly beneficial. The author has seen many people who were injured by this method of taking the tonic bath.

There are two methods to be recommended: Those who have access to a cold shower may stand for a moment, and for a moment only, under the cold shower, then step at once upon a warm rug and rub the whole surface of the body vigorously with a dry crash towel until the whole surface of the body glows with the warmth of the reaction. If one does not have access

to the cold shower, he may take a most effective tonic bath in his room, using cold water, the coldest obtainable, and a bath sponge, or even a wash cloth, dipping the sponge into the cold water, then pressing out enough of the water so that there will be no excess of water to run over the surface of the body from the sponge. Begin by sponging face, neck, shoulders, arms and chest, then wipe these parts dry, subject them to vigorous friction with the crash towel until the arms, shoulders and chest particularly glow with the warmth of the reaction. While the upper half of the body is receiving its bath the lower half may be kept covered, and conversely.

This tonic bath should be taken immediately upon arising in the morning, and as a part of the morning toilet.

If one takes such a tonic bath on arising, then dresses hurriedly and takes a brisk walk of fifteen or thirty minutes, the regime quickly brings his body into the most vigorous and robust state of health; unless there is something wrong with his digestion or his excretion, and even moderate derangements of these will be very likely to be corrected by the regime just suggested.

3. EXERCISE.

Incident to the above topic mention has been made of the brisk morning walk before breakfast. This has

a most salutary tonic effect besides the influence that it exerts upon the bowel movements. Not the least important result of this morning exercise depends on the fact that the lungs are repeatedly and completely inflated with the pure out-of-door air. This naturally exerts a most valuable influence upon the development of the lungs in the youth or the maintenance of their vigor in middle age.

The increased heart action is also advantageous as it leads to hastened circulation through the muscles, glands and brain. This hurrying blood current not only carries nutriment to these organs, but carries away their accumulations of effete material to the excretory glands.

The student must be cautioned not to overdo this early morning exercise. The mile run, the mile row or any other strenuous exercise is strongly to be discouraged at this time of the day. If one overdoes morning exercise, he is likely to feel somewhat depleted and fatigued, throughout the remainder of the forenoon, and his ability to do a high grade of mental work is decreased rather than increased.

Besides the morning exercise, every person who wishes to live a vigorous physical life should have from one to two hours of heavier exercise during the latter part of the day or evening. This exercise may take any one of many forms. It may be golf, tennis, foot-

ball, base-ball, cricket, rowing, lacrosse, basket-ball, cross country running, track or gymnasium work, etc., etc. The immediate results of this exercise should be largely to increase lung and heart action and to cause a sufficient fatigue of the muscular system so that rest is sought and may be followed by dreamless, recuperative sleep.

It might at first seem paradoxical that to build up strong muscles we must first fatigue them, but that seems to be Nature's plan. The only way to build up a strong physique is to use that physique and use it to its maximum capacity.

If one exercises thus freely and eats abstemiously he ought not to lay on fat. If he does lay on fat, he may know that he is eating more than he needs and he should make his diet more temperate. The youth of eighteen or nineteen who is tall and rather spare, and whose muscular system has not reached its full development would, of course, increase his weight incident to the growth of his muscular system. This increase in weight must not be confused with increase of weight through fat deposit. The latter should be avoided—the former should be encouraged.

Not by any means the least important thing accomplished by physical exercise is the association with his fellows incident to his exercise. The courage, nerve control, quick judgment, agility and strength required

on the foot-ball field make no small part of the young man's equipment to fight the battles of life. The conditions of these games give frequent opportunities for the young man to cultivate the spirit of honesty and fair play—the spirit, without which, no man can reach his highest success in the real contests of life.

4. THE HYGIENIC REQUIREMENTS OF SLEEP.

The personal hygiene of sleep is by no means an unimportant topic, though it may be briefly treated.

The amount of sleep that each individual requires and should take can only be determined by the individual. Some seem to require ten hours, others eight, others six, while rarely individuals are found who seem to thrive on even so little as five hours of sleep out of twenty-four. The average requirement seems to be about eight hours. If one has by experience or experiment determined the amount of sleep which he requires, he should so plan his daily regime that he can secure that amount of sleep. While a brief departure from this regime may be without serious results, any prolonged departure from it will certainly bring its natural retribution. So, the young man having determined how much sleep he needs, should adopt a daily program that will provide for just that many hours in bed, and he should early establish the habit of going to sleep at once upon retiring, and of

arising at once upon awakening. Dallying in bed has led many a young man to lapse into habits of thought and of action that are in a high degree deleterious, morally and physically.

So far as one may choose the equipment of his sleeping apartment, he should choose a hard bed and a cover as light as possible and yet be comfortable.

One should never retire with cold feet. A most effective way to warm the feet is to dip them for a moment in cold water and then rub them vigorously with a coarse towel until they glow with warmth. Furthermore, no more effective remedy for habitual cold feet could be devised than this nightly tonic bath.

One will add greatly to his comfort and decrease largely the danger of taking cold if he provides himself with a pair of warm bed room slippers, which should always be worn during one's excursions to the bath room, and during his tonic sponge bath.

As to posture in bed, the experience of men in general is, that the most comfortable posture and the most hygienic one is to lie upon the side. The right side is to be preferred to the left because in this position, the heart being on the upper side, is not embarrassed in its free movement by the superincumbent lung tissue. Furthermore, this position facilitates the passage of digesting foods from the stomach. To

maintain comfortably this side position, requires that the knees be at least moderately drawn up. This posture when asleep is practically identical with that of nearly all higher animals, and is unquestionably the most hygienic one for man. No animal but man ever lies upon its back unless it is dead. Furthermore, the dorsal position puts tendons, nerves and muscles on a stretch, while the flexed lateral position puts these in a more or less relaxed position, which is most favorable to rest.

It goes without saying that sleeping rooms should always be thoroughly ventilated. The occupant should take care that he does not lie in a direct draught from a window or door, because it has been found by experience that one is less likely to catch cold if he sleeps out of doors than he is if he sleeps in a direct draught from a window or door. Just why this is has not been satisfactorily accounted for, but the fact remains. So if you must sleep in the house, secure perfect ventilation without direct draughts.

5. THE CONTROL OF THE THOUGHTS.

There is no more effective safeguard for the man who wishes to lead a continent life than the control of the thoughts. It goes without saying that the man who thinks about sexual matters, especially the one whose imagination runs wild upon all kinds of sexually

stimulating images, is only inviting temptation to relax his continence. If he controls his thoughts during those times when he is less amenable to temptation, he is far more likely to be able to control his acts at those times when his physical condition makes him most amenable to temptation.

The most effective way to control the thoughts is so to plan one's work as to insure the complete occupation of the mind with affairs that are wholly independent of sexual experiences or considerations. One should set a mark for himself so high above his present position that he is compelled to put forth strenuous and unremitting efforts in order to accomplish his aim. The old saying that, "Satan finds work for idle hands to do" is all too true. Anyone may observe the influence of idleness or even the influence of a partially occupied program upon the habits of the youth and young man. Beard and Rockwell, in their valuable work on this subject say: "Go to work; develop your muscles and brain; resolve to become at least useful if not famous. The activity which will be necessary in carrying out these ambitions will divert the mind from imaginary evils, if they are imaginary, and will be one of the best means to cure the real ones."

CHAPTER VI.
DEVELOPMENT.

DEVELOPMENT.

The development of the child within the uterus of the mother represents a chapter in the life history of every individual so important in its relations to maternity and paternity that every young man should be acquainted with at least its general features.

As stated in the chapter on Reproduction, every living organism begins life as a single cell, or globule of protoplasm. In the case of the human subject, the cell from which each child begins its development is formed by the fusion of two cells or globules of protoplasm, one furnished by the mother, and called the ovum, or egg; the other furnished by the father, and called the spermatozoon. The egg is very much larger than the spermatozoon, and contains enough yolk material to afford nourishment for the embryo for a number of days.

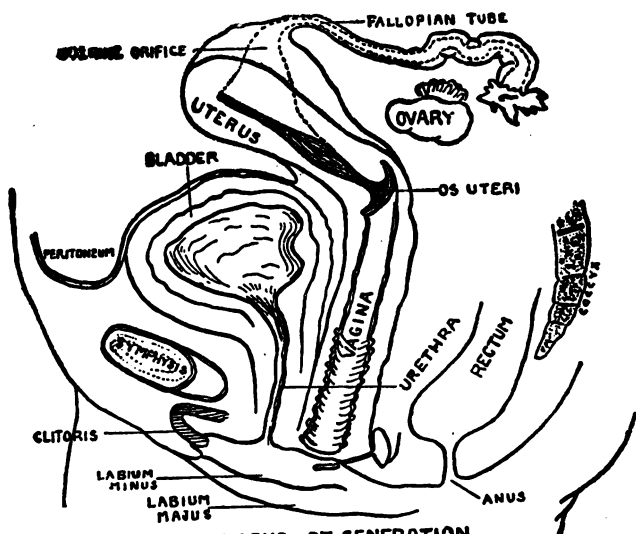
When the ovum reaches the finished state, which is called "maturity," it leaves the ovary, and is carried along the fallopian tube (see accompanying figure) into the uterus, where it usually finds a lodgment in the upper part, as shown in Figure I. Once the minute ovum has been caught in the projections of the velvety inner surface of the uterus, this thick velvety lining of the uterus in the neighborhood of the ovum begins a

rapid growth, gradually enveloping the rapidly expanding ovum, as shown in Figures I and II of the accompanying plate.

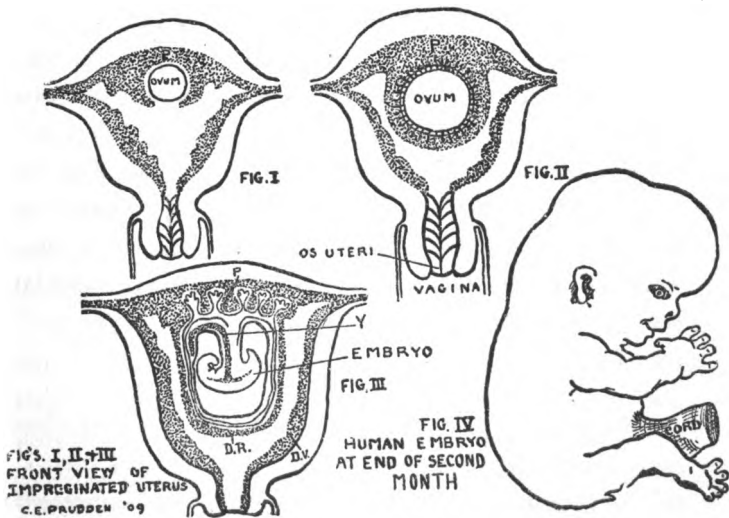
Within the ovum there are taking place some of the most marvelous changes in the whole life history of the individual. The nucleus of the fertilized egg, and the protoplasm which surrounds it, divide into two cells, then into four, eight, sixteen, etc. These divisions follow each other in such rapid succession that there are many hundreds of cells by the end of the first twenty-four hours. These cells soon begin to arrange themselves into layers and groups, which, step by step, develop the different tissues and organs of the body.

By the end of thirty days the little embryo, about as large as one inch of the end of a lead pencil, would be recognized as the embryo of some mammalian animal, but it would be quite impossible to say whether it would develop into a human being or some other animal, if it were seen quite apart from its immediate surroundings. By the end of another thirty days, however, the little embryo has multiplied its size several times, and has reached a form instantly recognizable as the young of the human kind, as shown in Figure IV. It still, however, retains the vestige of a little tail, which within the next thirty days will have been completely absorbed.

Note that the little two months embryo has projecting from its abdomen a large structure which is labeled "cord." This cord is a part of what is called the



THE FEMALE ORGANS OF GENERATION



umbilical cord, and it is this that joins the embryo to the mother. Note in Figure III the large stalk of this cord passing upward from the body of the embryo and merging into the structures in the top of the uterus. Note further that there are little branching structures passing from the base of this stalk up into the base of the uterus. These branching structures are loops of blood-vessels, and they form part of the placenta, or "afterbirth." Through this cord the embryo receives its nourishment from the mother. The blood of the mother bathes these loops of blood-vessels, and the embryo absorbs from the mother's blood the nourishment which builds its bones, muscles, brain, spinal-cord, and glands. From the same source the embryo receives the oxygen necessary for the maintenance of its life.

From the third month on to the end of the nine months, the amount of material which the mother must provide for the development of the child within her womb amounts to no small draft on her physical resources. It is not at all uncommon for a mother in the later months of pregnancy to become quite pale, her blood having been impoverished to provide material for the development of her child.

MATERNITY.

What has been said above regarding the contributions which the maternal organism must make toward the development of the offspring must have impressed

on the mind of the reader that *maternity means, first of all, sacrifice.*

This sacrifice begins when the girl first enters upon womanhood.

With the expulsion of the ripened ovum comes, each month, a week of special physical drain, when work must be lightened and vigorous exercise curtailed, when exposure to cold or dampness may mean loss of health.

Under these circumstances a woman should at this time deny herself the pleasure of dancing; of skating or swimming; of sleigh-rides or cross-country walks and the young man should make it less difficult for her by acquiescing without question or demur in her request to be excused from such recreation.

It is a fact that more sacrifice is involved in maternity among the more highly cultivated nations of the human race than is true of aboriginal peoples, or among the lower animals. Conditions of modern life, and particularly urban life, leave the female organism less able to endure the drafts made upon the system by maternity, so that to bear a child may mean not only the sacrifice of comfort, but even the sacrifice of health.

The highly sensitive, delicately adjusted nervous system of the woman is perhaps more profoundly influenced than any other part of her being. This manifests itself particularly in a heightened degree of sensitiveness. It goes without saying that the pregnant woman de-

serves at the hands of all who come in contact with her, and particularly at the hands of her husband, most considerate and sympathetic treatment. Her little whims and vagaries, however unreasonable, must always be treated seriously, and with delicate and tactful consideration. The members of her family, particularly the husband, owe it to her and to her child to keep her in as happy a frame of mind as possible.

When we consider the real significance of maternity to the race, to society, and to the family, we must feel that, of all human relations, maternity is the most sacred, and that no condition should be allowed to mar it, and no consideration to take precedence of it.

PATERNITY.

After the husband had contributed the male sexual cells, or spermatozoa, in this wonderful process above outlined, it might seem that there is little he can do, except to wait, while nature carries on the process. The reader will remember, however, from the chapter on Reproduction, that the contribution of the spermatozoa only initiates the sacrifices that the paternal organism must make in this process. Are there any demands on paternity between the time of conception of the new life and its birth?

As already mentioned under the preceding topic, the

pregnant mother needs gentle and loving care. She needs to have her little whims and foibles overlooked. She needs to be protected, so far as possible, from every influence that might depress or make her unhappy. She needs to be guarded against any unusual physical exertion, and above all, she needs at this time more than at any other time, the manifested affection and sympathy of her husband.

There is another sacrifice, if it may be so called, which the husband is called upon to make during the pregnancy of his wife, namely, *to abstain absolutely from sexual intercourse during the period of pregnancy and for two or three months following.* This means practically one year of continent living. All other animals observe this period of continence. Nature demands that man observe it in common with other animals. Man is the only animal that has transgressed this fundamental law of nature. The retribution which nature metes out to the transgression of this law is various. Sometimes, but rarely, the sexual excitement on the part of the woman may cause an abortion, or a miscarriage. The more usual result makes itself manifest in the drain on the nervous energy of the woman. When we consider that maternity in the human race involves greater sacrifice than in any other animal, it would seem that the addition of this last demand, namely, of satisfying the sexual desires of the husband during

the period of pregnancy, might prove "the straw that breaks the camel's back," and result in the more or less complete nervous breakdown of the woman. The author submits this question to all fair-minded men: Is it not due to the wife that she be not asked to satisfy the recurring sexual desires of the husband during the period when her life and its energies are so sacred to the race, to society, and to the family?

The author submits this question because some men are known to transgress this law of nature. Fortunately the proportion of men who thus transgress is not large.

Let us stand for these things: (1) *An equal standard of purity for men and women*, (2) *A strenuous, virile, continent manhood*, (3) *Sexual temperance in wedlock*.

APPENDIX

APPENDIX.

Personal conferences and correspondence with young men regarding the solution of their problems have brought out several questions that are so frequently repeated as to make it evident that the answering of them would serve the purpose of clearing up certain questions or doubts, more or less important in the minds of many young men. It has been decided to group these answers in an appendix rather than to incorporate them in the body of the book, as many of them seem not quite relevant to the topics outlined under the several chapters.

1. *Are there always two testicles in evidence in little boys of one to five years of age? If not, why not?*

The testicles are formed within the abdominal cavity in close association with the kidneys. They gradually pass downward to and through the groin canal, reaching the scrotum about the time of birth.

It is very common for this process to be delayed and one or both testes may be in the groin or inguinal canal at the time of birth. If they are still in the groin at the end of the first month very gently pressing the testicle toward the scrotum a few moments each day will result in its early descent, though it will usually descend anyway. If both testes are not in the scrotum by the time the youth is ten or twelve years old the

parents should consult their family physician or a surgeon.

2. How may one control too frequent emissions?

If emissions are too frequent for the individual case, they are followed by depletion and malaise. Even if they occur as infrequently as once in two weeks and are followed by the above symptoms, they must be considered as too frequent, or abnormal in that case. On the other hand, they may occur as frequently as twice a week in plethoric robust individuals, and especially in men who have had frequent sexual intercourse, and who have for some reason discontinued it. And even though they occur as frequently as twice a week, if they are followed by a feeling of relief and wellbeing, they must not be considered as too frequent for that individual under the conditions.

So the frequency limit of nocturnal emissions is more or less independent of the time and quite dependent upon the reaction of the individual to the emission. If, following the criterion above outlined, one finds that his emissions are too frequent, because of accompanying depletion and malaise, this frequency may be modified either by changes of the diet or by changes of hygiene.

For a more extended discussion, see text above on nocturnal emissions.

3. Do the organs of reproduction actually develop after the age of seventeen or nineteen or even to the

twenty-fifth year as is the case with the physical and mental powers?

The brain of an individual adds no nerve cells after a very early age. The brain increases only very slightly in size and weight after the age of puberty, and then only under special conditions and this increase in weight and size is not due to the addition of any new cells, but simply to a slight increase in the bulk of those cells already present. In a similar way the sexual apparatus undergoes, during the period of puberty (fifteen to seventeen) a very rapid growth, reaching by the end of the period of puberty (seventeenth or nineteenth year) their full size.

4. Are enlarged veins in the scrotum dangerous?

Enlarged veins of the scrotum represent dilatation of the veins of the epididymis. These are thin walled vessels that respond to any increased internal blood pressure, perhaps showing a special tendency in this direction during that period of rapid growth of the sexual apparatus in the early part of the adolescent period. If the enlargement is only moderate, it may disappear, or at least become spontaneously arrested in its growth, in which case it need cause no concern. If these veins, however, dilate until they form a considerable mass, known as VARICOCELE, they may affect the sexual apparatus deleteriously in two ways: (1) The increased weight in the scrotal sac may cause the sac to become elongated and to

annoy the subject by its traction on the spermatic cord. This lengthened scrotum with its contents may also be exposed to mechanical pressure or even to injury from the clothing, etc., which would not occur if the scrotal sac were short, holding the testes close to the body. (2) Of far more importance is the danger of the varicocele gradually encroaching by pressure upon the testis, perhaps to cause a partial atrophy of that gland. This condition is a comparatively rare one, and inasmuch as it seldom occurs in both testes, the possibility of causing sterility on the part of a man is remote.

The extension of the scrotum and the "bearing-down" sensation may be relieved through the wearing of a suspensory bandage. Such a bandage may be obtained at any drug store or surgical instrument house, and if properly fitted, will usually relieve any such discomfort as described above. If the varicocele is quite large, the subject will do well to consult a competent surgeon and to take his advice.

5. *Is the emptying of the seminal vesicles thru nocturnal emission a universal phenomenon among continent men?*

The nocturnal emission is not a universal method of emptying the seminal vesicles. Some continent men never have nocturnal emissions. The reason may be sought in one of two directions: (1) The usual cause of absence of nocturnal emissions is to be found in the fact that in the man in question the seminal vesicles are periodically drained by *involuntary diurnal emissions*,

occurring usually when the individual is at stool. These emissions are likely to occur once in two to four weeks and take the place of the nocturnal emission. (2) Rarely we find virile, continent men whose vesicular secretion is so scanty that they are never conscious of its emission.

6. (a) *Should a man who for three to six years of his boyhood practiced masturbation think of wedlock?*

(b) *That is, assuming that his reform was early and complete, may he ask a pure woman to be his wife?*

Such questions as these are very frequently asked and with most serious motives. A vast majority of boys and young men who practice self-abuse, do so either wholly ignorant of the fact that it is wrong or cognizant only in a vague way of the evil of the practice.

To consign a man to the Hades of homelessness and the sorrow of childlessness because through ignorance he lapsed from purity during a few months or years of his life, would be meting out a retribution far in excess of the sin. If nature intended such a retribution to be meted out she would have led the way by causing an atrophy or some other form of disease in the subject who had abused his sexual organs. But nature does not do that. If the young man who, from his twelfth to his eighteenth year, has practiced masturbation, is shown the error of his way and breaks the habit absolutely, nature quickly comes to his rescue and rehabilitates his virility completely, unless he has been guilty of extreme excess in the habit. This rehabilitation of virility after self-

abuse is usually experienced in from one to three years, according to the case and the extent of the practice.

The complete mastery of a habit after it has through years been forging its chains about the youth, is in itself no small victory and should go a long way towards extenuating his lapse. The young man who can conquer himself and learn to lead a pure life, free from his early habit and above reproach not only in his acts toward womankind but also in all his thoughts of woman deserves his well-earned reward. He deserves the respect of all pure women and should be able to win the love of one whom he may with clear conscience ask to be his wife, and with whom he may confidently expect to build a typical home, blessed with healthy children.

7. Should a man have intercourse for any purpose other than for procreation?

In the normal course of events, if intercourse is indulged in for procreation only, it would come as often as once, perhaps twice in a month; that is, either just before the menstrual period of the woman or just after, the woman being most easily impregnated at these two periods.

A man who has led a continent life before marriage should have no difficulty in controlling his sexual appetite to that extent. If the sexual intercourse occurs as infrequently as once or twice in a month, the man, by living thus continently, will find it much more easy to

maintain his continence during the twelve-month period after his wife becomes pregnant before he can properly have intercourse with her again, than would be the case if he had had sexual relations much more frequently.

That the man desires intercourse much more frequently than as above outlined and that the woman, in the vast majority of cases, does not desire intercourse except for procreation and about as frequently as above indicated is, without any reasonable doubt, due to hereditary tendencies. Under primeval conditions, and in fact, until comparatively recent times, the vast majority of mankind were polygamous, the strong men of the race—those who procreated their kind—having as many wives as they could support and protect, the weak men of the race being crowded aside, sometimes castrated, to become the burden bearers for the strong.

Under conditions of polygamy the woman is rarely subjected to sexual intercourse for other than procreative purposes, and even granting that the man has intercourse for procreation only, if he had twelve wives, he would be having it twelve times as frequently as any one of them. That these experiences on the part of a long line of maternal ancestors should lead the women of today to desire sexual intercourse for procreation only, is easy to understand; that the impulses transmitted along the paternal line of ancestors should lead the men of today to desire intercourse far more frequently than this

can, under monogamous conditions be indulged, is also easy to understand.

8. *How frequently may sexual intercourse be indulged, in the marriage state?*

If one is to overstep the bounds mentioned above, i. e., to indulge in sexual intercourse once or twice in a month for procreation only and not at all during the period of pregnancy and childbed period, the limit is then set, not by strictly normal and anthropological considerations, but by the health of the individuals. The author has seen young married couples who had carried their sexual intercourse to such extremes as seriously to deplete the physical vigor and menace the health of both parties. Just how frequent indulgence will have this effect in any particular case is impossible to say. In some cases twice a week may have this effect; in other cases once in twenty-four hours might be borne for a considerable time. In any case the condition is an unnatural one and is certain to bring a natural retribution in some form—either broken health, or sterility of the wife, and depleted powers of the husband, or weak and sickly children, separated by long intervals.

9. *How long is it possible for a young man to waste his vital fluid and yet be able to raise healthy children?*

This question cannot be answered in other than most general terms. The author has known one case of a young man who, for several years, practiced masturba-

tion several times a day, so far depleting his powers that he could not walk erect, his muscles were flabby, his testes were very soft and small, his eyes shifty, his hands clammy and his mind incoherent in its working. He seemed to be a candidate for the asylum and would probably have gone there if radical means had not been adopted to break him of the habit. He was broken, however, absolutely, and never performed the act after his nineteenth birthday. Within three years he had completely recovered his virility. He had nearly doubled in weight and in lung capacity and a large part of his increased weight was in great bulk of muscle of high tonicity—muscle which he had gained by heavy physical work upon a ranch. His sexual organs had completely regained their tonicity and without doubt, their virility. He had so far recovered mentally that he finished a course of professional study, is very successful in his profession, happily married and the father of healthy children.

On the other hand, a middle-aged man consulted the author regarding the sterility of his wife. After examination, it was found that the husband had practiced masturbation about twice a week from the age of puberty to his twenty-fourth year, when he was married. He assured the author that at the time of his marriage his testicles were, as far as he had known, similar to the testicles of other young men, and that during his married

life he had never had intercourse with his wife more frequently than once in a month, but that during that time he had noticed a gradual atrophy of the testes. At the time of the examination only small atrophied remains of these testes could be discovered. The sterility of the wife was due, without any question, to the absolute impotence of the husband, and so far as the history of the case would suggest, there was no other assignable cause of this impotence than the eight years of masturbation.

From these two cases, it must be evident that no rules can be laid down. In one case the subject recovered fully from a case of extreme masturbation; in the other case, a habit that would not be called extreme resulted in impotence. It must be evident that the practice is a dangerous one after puberty, as no individual can tell to which of the above cases his may be similar.

10. *Granting that masturbation is harmful through loss of semen, is there any compensation for this loss of semen in case of intercourse with a woman?*

There is no doubt that an emission of semen following sexual excitement is a draught upon the virile powers of the male animal. If this sexual excitement is the artificial one cultivated by the masturbator, the depletion seems to be more marked than is the case with the normal, natural stimulation incident to sexual intercourse. Some have suggested that the reciprocal influence of the woman can in some way compensate for the vital fluid

contributed by the male. It is hardly likely that such a reciprocal influence is other than psychical, but that is certainly sufficient to account for any difference in these two forms of sexual gratification.

Nature calls upon the male animal to make a contribution for procreation, which contribution is, always has been, and, in the very nature of the case, always must be a certain tax upon the powers of the male animal. When the intercourse is indulged for procreation only, the male animal can well afford to make the contribution. Even with that, the contribution which the male makes to procreation is incomparably less depleting for him than are the contributions which the female makes for her.

11. *Will vital fluid flow with every sexual intercourse?*

If vital fluid is present, and if the sexual intercourse is carried to the point of causing an orgasm, there would, in all normal conditions, be an emission of semen or "vital fluid."

12. *Is there any way to regulate intercourse so as to control the sex of the offspring?*

While there are many theories upon this subject no one of them is generally accepted by medical men.

13. *Will an intense and continuous desire on the part of a young man for sexual intercourse cause a loss of seminal fluid?*

An intense and continuous desire for sexual intercourse will, without question, cause an active secretion on the part of the testes, an increased secretion on the part of the seminal vesicles and an active secretion on the part of the prostate gland and of Cowper's glands. The secretion from Cowper's glands will make its way along the urethra and appear at the opening of that duct, probably soiling the linen of the subject. The accumulated semen from the other glands will tend rather to aggravate than allay the sexual desires. Such a condition of the sexual apparatus is likely to cause a nocturnal emission, relieving this tension and emptying the gorged gland ducts. If the nocturnal emission does not occur, the sexual desires are certain to return to occupy the waking hours more or less completely. If the nocturnal emission does occur, it will carry away not alone the vesicular secretion, but also more or less of the nascent spermatozoa and other constituents of the vital fluid. Seasons of intense and prolonged sexual excitement are in a high degree inimical to continence, and even though the subject does not fully submit to his inclination, his nocturnal emissions, which are likely to come frequently, carry away the product of the testicular secretion, thereby depleting to a certain extent, his virility. It is hardly necessary to urge the importance of resisting these onslaughts of sexual passion in their very incipiency.

14. *How may the habit of masturbation best be brought under control?*

The first thing to accomplish is the purification of the thoughts. The most effective way to purify the thoughts is to divert them to a pure and strictly non-sexual subject—e. g., *pure mathematics*. The young man who is trying to break this habit will do well to follow very closely the rather strenuous regime outlined under hygiene in the body of the book. If his condition is complicated because of the presence of a very long loose foreskin, he will be wise to have this removed by the simple operation of *circumcision*. If he should awake in the night and feel the temptation to resort to his old habit, he should resist the temptation in its first stage and instantly put his mind on some subject quite foreign to his sexual apparatus. If he does not succeed by force of will in diverting his mind from himself, the best thing to do is to arise, dress and walk. If walking will not do it let him run, and keep moving in the open air, under God's blue sky until he is so tired he can hardly put one foot before the other. Then if he will retire to his room, he will probably have no further difficulty at that time.

15. *What influence has dancing upon the young man's solution of his sexual problems?*

It hardly seems possible that a virile, husky young man, in his early twenties, could be subjected for several hours to the conditions of the modern dance hall, where he is brought into very close physical contact with young women, dressed to expose their secondary sexual features,

perfumed to excite in a man his hereditary sexual instincts; held so close to his partner in the round dance that he is conscious of every movement of her limbs, and all of these under the influence of artificial light and music—I say, it is hardly possible for a virile young man to be subjected to all these conditions without experiencing an extreme sexual excitement. That such an experience often repeated not only does not simplify the young man's problem, but seriously complicates it is not a matter of doubt on the part of anyone who has studied these problems. All specialists in this field concur in the belief that the round dance, with its "turkey trots" and "bunny hugs," seriously complicates the young man's sex problem. That the young women are, for the most part, quite innocent of the effect of all these conditions upon their young men friends is also believed by those who have studied the problem. If they were conscious of it, a large majority of them would not longer consent to be the party to such unfortunate conditions. The Square Dance, the Virginia Reel and similar dances of the times of our grandparents are not remotely to be compared in this matter with the modern Round Dance.

16. *May lost Virility be regained by use of "Remedies" or medicines of any kind?*

No. Positively and absolutely, No. Many such nostrums are advertised in the public prints. Many are

sold by charlatans and quacks. No reputable physician would hold out to his patient the hope that any drug could bring back lost manhood.

Lost manhood or lost virility may be regained by right living only. The prescription for right living is as follows: *Live a continent life* and follow a *strenuous and sane regime of personal hygiene*, such as outlined in Chapter V above.

17. *Is the production of semen modified by nutrition?*

The production of semen is greatly modified by the state of nutrition. Remember in this connection that semen is partly from the testes (Spermatozoa) and partly from the vesicles and prostate. The formation and release of spermatozoa is only slightly modified by the condition of nutrition; while the rate of secretion from the vesicles is greatly modified in quantity. This accounts for the fact that well nourished men who eat heavily are very likely to experience frequent nocturnal emissions, when living continently.

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Walter M. Wood, General Secretary.

October 17, 1908.

To Whom It May Concern:

It is with great pleasure that I pay a tribute of appreciation to the excellent service of Dr. Winfield S. Hall, in his presentation to audiences of young men of the vital problems of sexual hygiene.

With the intelligence of a trained and experienced physician, with the thoroughness and frankness of an expert teacher and with the delicacy and motive of a Christian gentleman, he presents the "Young Man's Problem" in such a way as to make him, in my judgment, one of the most helpful counselors of young men on the American platform today.

Sincerely,

W. M. WOOD.

UNIVERSITY OF NOTRE DAME.

Winfield Scott Hall, M. D.,

Northwestern University Medical School.

My Dear Dr. Hall:

In your lecture on "The Young Man's Problem" and in your book on "Sexual Hygiene" you are doing a great service for the rising generation. I am convinced that one great source of vice is ignorance about the matters touched upon in your lecture and book. Priests are constantly giving instruction on these same points, but it is a distinct advantage to have their teaching reinforced by a distinguished physician, expressing himself with the plainness of the laity and speaking always in a most reverential spirit. For students seventeen years of age or more your presentation of this difficult subject will be a Godsend, for it abates curiosity, dissipates ignorance, warns of perils and arouses a manly desire for a clean life.

Very sincerely yours,

JOHN CAVANAUGH, C. S. C.,

President.

CENTRAL DEPARTMENT, Y. M. C. A., CHICAGO.

October 21, 1908.

Dr. Winfield S. Hall, Northwestern University Medical School.

My Dear Dr. Hall:

Our committee wants to know if we cannot arrange a date with you this year to deliver your lecture on "The Young Man's Problem." I also want some more of your books on Reproduction and Sexual Hygiene.

I cannot forbear to express my very hearty appreciation of the splendid service you have done and are doing to the young manhood of our country in this lecture and this book. I have never heard a presentation of the subject which takes hold so deeply upon thoughtful men, and your book is by all odds the best thing in print on this subject. Your scientific, yet popular, method and the absence of vague moralizing are convincing and inspiring in their effects. I trust we may hear you this year.

Very truly yours,

HERBERT W. GATES,
Secretary, Religious Work.

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LAKE GENEVA.

October 7, 1908.
Dr. Winfield S. Hall, Northwestern Medical School, Chicago, Ill.
My Dear Dr. Hall:

I want to express my appreciation of your talk to boys on Sexual Hygiene. I listened with the greatest of interest to your presentation before the Boys' Conference at Lake Geneva the past summer and it seemed to me that both in substance and in form of presentation you hit the nail on the head in a way I had never before seen it done. I believe that your contribution to boys in this direction is to be even greater than that which you have been making to young men.

Sincerely yours, FRANK H. BURT,
President.

STATE AGRICULTURAL COLLEGE OF COLORADO.

Dr. Winfield S. Hall, Fort Collins, Colo., October 27, 1908.
Northwestern University Medical School, Chicago.
Dear Doctor:

I wish to testify to the value of your lecture to boys from 12 to 16 years of age. You have touched a vital subject in a most original way that impresses every boy that hears you. You lead up to your "Secret of Manhood" in a manner that holds the attention, impresses the truth you want to teach, so that it is sure to be of lasting good.

This lecture I regard as the very best of its kind which I have ever heard.

Sincerely yours, W. H. OLIN,
Vice Dean, State Agricultural College of Colorado.

PRINCETON TOWNSHIP HIGH SCHOOL.

Princeton, Ill., October 6, 1908.
Dr. Winfield S. Hall of the Northwestern University Medical School recently gave a talk to our high school boys along physiological lines, setting forth very scientifically but plainly many delicate and important truths which every boy should know. Dr. Hall is a master of his subject and his manner is so dignified and yet sympathetic that he commands respect and holds the closest attention. I feel sure that such a talk given to boys and young men does a great amount of good.

Sincerely, H. S. MAGILL Jr.,
Principal.

INTERNATIONAL COMMITTEE, Y. M. C. A.

W. S. Hall, M. D., Chicago, Ill. Chicago, Ill., October 4, 1908.
My Dear Doctor:

I am more than glad to speak a word in commendation of your lecture to boys on the "Secret of Manhood." To me it is the most sane, safe and logical presentation of a much avoided subject that I have ever heard. The boys at the Lake Geneva Conference were strongly impressed without the undue excitement and morbid curiosity that so often accompany the presentation of the subject of "Personal Purity." And not only were the boys benefited but all the fifty boy workers present, representing the entire Central West, had nothing but words of highest praise for the way you handled the subject before two hundred older boys.

I am glad that you are getting out material for a booklet on the "Secret of Manhood," and shall be pleased to see the manuscript. We are much in need of such a thing and believe the International Committee can aid you in getting it out if necessary.

Yours cordially, F. A. CROSBY,
Boys' Work Secy., International Committee, Y. M. C. A.

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